BRL-K21013-02 CONCEPT
09-01-2026

Evaluation guideline

for the Kiwa product/procescertificaat for Container tanks

This evaluation guideline covers the production of:
Steel container tanks with a maximum capacity of 100 m^3 for the stationary aboveground atmospheric storage of liquids.

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Preface

This evaluation guideline (BRL) has been accepted by the Kiwa Board of Experts Tanks, Tank installations and Appendages (TTA), in which relevant parties in the field of container tanks are represented. This Board of Experts also supervises the certification activities and will adjust this evaluation guideline if required. All references to Board of Experts in this evaluation guideline pertain to the above mentioned Board of Experts

This evaluation guideline was developed by a working group (WG) comprising representatives from Criteria Committee 36 (CC36) and stakeholders from the market segment for tanks and tank installations. Criteria Committee 36 reviewed this evaluation guideline.

This evaluation guideline will be used by Kiwa in conjunction with the Kiwa Regulations for Certification, which include the general rules employed by Kiwa for its certification activities

The following parts of this evaluation guideline have been modified compared to the previous version:

- Maximum capacity is changed from 50 m^3 (50,000 litres) to 100 m^3 (100,000 litres).
- Latest Kiwa template for evaluation guideline is used. Paragraphs 1.3, 7.2, 8.1, 8.2, 8.4, 8.7 and 8.10 are conform this latest template and in line with Kiwa's internal quality system.
- The composition of the criteria committee CC36 is not publiced in this version of the evaluation guideline. If required, information about this can be requested from Kiwa.
- Amendment of 22 June 2021 is integrated in the text.
- There are no longer any references to BRL-K903. Instead, only BRL SIKB 7800 is referred to. Due to change regulations, it is no longer stated that installation according to BRL SIKB 7800 is mandatory.
- BRL-K748 has been withdrawn. Instead, reference is made to the requirements for spill containers (drip trays) in BRL-K21051, scope 2B.
- Annex I is in accordance with Kiwa model product certificate, as used upon publication of this evaluation guideline.
- Annex II is in accordance with Kiwa model declaration of conformity, as used upon publication of this evaluation guideline.

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Binding declaration

This evaluation guideline has been declared binding by Kiwa effective [dd maand jjjj].

REMARK: THIS IS AN ENGLISH TRANSLATION OF THE DUTCH VERSION OF THIS EVALUATION GUIDELINE. IN CASE OF A DISPUTE, THE DUTCH VERSION SHALL BE BINDING.

Content

1. Introduction

1.1. General

The requirements included in this evaluation guideline will be employed by Kiwa when dealing with an application and the maintenance of a product certificate for “Container tanks”.
This evaluation guideline pertains to the production of:

- steel container tanks for the stationary aboveground atmospheric storage of liquids up to a maximum capacity of 100 m^3.

This evaluation guideline replaces BRL-K21013/01 “Container tanks” dated 01-11-2019 including amendment dated 22-06-2021.
In any case, the quality declarations issued on the basis BRL-K21013/01 will lose their validity after 6 months of binding declaration of this evaluation guideline (BRL-K21013/02).

When carrying out certification activities, Kiwa is bound by the requirements laid down in EN ISO/IEC 17065.

1.2. Scope

The products (container tanks) are intended for use for stationary, atmospheric storage and dispensing of liquids. The stored liquids are liquid fuels and/or mineral oil products with a flash point higher than or equal to 55°C.

The classification of liquid fuels and/or mineral oil products is in line with the PGS classes.

PGS Class	Flash point	Examples
PGS Class 3	≥ 55°C flash point ≤ 100°C	Wast oil [(1)], diesel, domestic fuel oil, gas oil, biodiesel
PGS Class 4	Flash point > 100°C	Fuel oil, lubrication oil, brake fluid, coolant, glycol, PPO, hydraulic oils
[(1)] When waste oil meets the EURAL requirements, it is considered a PGS Class 3 product.		

Table paragraph 1.2: Classification according to PGS Class

The storage part of a container tank can be single-walled or double-walled. If it is single-walled, it shall be placed in a second containment, the volume of which is at least equal to the storage capacity of the storage tank. It is possible to compartmentalize the storage tank.

The scope includes:

- Stationary aboveground, pressure less (atmospheric) storage;
- Non-cylindrical tanks;
- Tanks made of steel or high-alloyed steel;
- Minimum capacity 5 m^3 (5.000 litres);
- Maximum capacity 50 m^3 (50.000 litres);
- Single- or double-walled tanks (single-walled in a second containment);
- Suitable for ambient temperature (-20 to +50°C);
- Storage of liquids in compartments.

The scope does not cover:

- Tanks with a design pressure greater than 0,5 bar(g);
- Process tanks;
- Underground tank installation.

Container tanks according to this evaluation guideline are not suitable for transportation unless they have been cleaned internally.

A container tank is usually equipped with installation parts for filling and dispensing fluids as well as provisions against leakage. The tank installation as well as the final inspection of the tank installation and safety devices shall be carried out by a tank installation company certified in accordance with BRL SIKB 7800 “Tank installations”.

Container tanks according to this evaluation guideline are in line with the requirements for tank installations as specified in BRL SIKB 7800. The tank installation (tank, pipes, protection devices, etc.) installed in accordance with the requirements of BRL SIKB 7800 will result in a negligible environmental risk.

1.3. Acceptance of test reports provided by the supplier

With regard to the requirements included in this evaluation guideline, the applicant, in the view of third party assessments, can submit conformity reports issued by evaluation bodies to prove that the requirements of this evaluation guideline are being met. It will have to be demonstrated that the relevant inspection, analysis, test, and/or evaluation reports have been prepared by an institution that meets the corresponding applicable accreditation standard, namely:

- EN-ISO/IEC 17020 for inspection bodies;
- EN-ISO/IEC 17021-1 for certification bodies certifying management systems;
- EN-ISO/IEC 17024 for certification bodies certifying persons;
- EN-ISO/IEC 17025 for laboratories;
- EN-ISO/IEC 17065 for certification bodies certifying products, processes, and services.

This requirement is considered to be fulfilled when a certificate of accreditation can be shown, issued either by the Board of Accreditation (RvA) or by one of the institutions with which an agreement of mutual recognition and acceptance of accreditation has been concluded by the Board of Accreditation. If no certificate of accreditation can be submitted, the certification institution itself will verify if the accreditation criteria have been met.

1.4. Quality declaration

The quality declarations to be issued based on this evaluation guideline will be referred to as product certificate. A model of the product certificate has been included for information purposes as annex I.

1.5. Declaration of conformity tank

An example of the declaration of conformity tank to be issued on the basis of this evaluation guideline is included in annex II. If necessary, Kiwa can revise this declaration of conformity tank

1.6. CE-markering

CE-marking cannot be affixed to products manufactured in accordance with this evaluation guideline, since there is no harmonized European standard for this product available.
Remark: Components of the container tank can be affixed with CE-marking such as the low-voltage directive for the electrical equipment and machine directive for the pumps.

2. Terminology

2.1. Terms

In this evaluation guideline, the following terms apply:

- **Certificate holder**: The certificate holder is the supplier of the certified product, being the legal entity that enters into the certification agreement with the certification body.
- **Certification mark**: A protected trademark, which the supplier, whose products are deemed to meet the applicable requirements upon delivery, has been authorized to use by Kiwa.
- **Certification requirements**: Combination of functional, product and process requirements, with which it can be demonstrated that the product complies.
- **Declaration of conformity tank**: A document in which the supplier/tank manufacturer declares that the container tank has been constructed in accordance with the regulations as laid down in this evaluation guideline.
- **Evaluation guideline (BRL)**: The agreements made by the Board of Experts on the subject of certification.
- **Functional requirement**: Requirement to demonstrate that it is functionally possible by means of a calculation method specified in the evaluation guideline.
- **Initial assessment**: The initial assessment of the supplier and the investigation of the products in question in order to ascertain that all the requirements of this evaluation guideline are met.
  Remark: The test matrix summarizes the requirements that are part of the initial assessment.
- **Internal Quality Control scheme (IQC scheme)**: A description of the quality inspections carried out by the supplier, as part of his quality system.
- **Manufacturer**: The manufacturer who manufactures the products. He can also be the supplier.
- **Process requirements**: Established method or procedure with which the intended quality is achieved.
- **Product**: A single or a composite product, or the output of a process or service.
- **Product certificate**: A document, in which the certification body declares that a product may on delivery be deemed to comply with the product specification recorded in the product certificate.
- **Product requirements**: Requirements made specific by means of measures or figures, focussing on (identifiable) characteristics of products and containing a limiting value to be achieved, which can be calculated or measured in an unequivocal manner.
- **Quality system**: The established organizational structure, responsibilities, procedures, processes and facilities that are required for implementing quality assurance.
- **Supplier**: The party responsible for ensuring that products and processes continuously meet the requirements on which the certification is based.
  Remark: a supplier does not have to manufacture the product himself. He can use a manufacturer for this purpose.
- **Surveillance assessment**: The assessment that is carried out after the certificate has been granted in order to ascertain that the certified products or processes continue to meet the requirements stipulated in this evaluation guideline.
  Remark: The test matrix summarizes the requirements that are part of the assessment.

2.2. Definitions

In this evaluation guideline, the following definitions apply:

- **Filling connection**: The (pipe) connection fitted to the tank, from which the filling point is connected.
- **Filling point**: Where the connection between tanker and tank installation is made in order to fill the tank.
- **High-alloyed steels**: For high-alloyed steels, the alloying element has a content of at least 5% or the total of the alloys is at least 10%; however, the iron content shall be more than 50%.
- **Leak detection medium**: A medium with the property of being able to give an indication of whether a leak is present.
- **Liquid fuel**: Light oil, medium oil or gas oil intended for energy conversion to power or heating/cooling.
- **Liquid tight**: The condition where a liquid has not reached the side of a tank container or second containment that is not directly in contact with the liquid.
- **Maximum capacity**: Maximum volume of the content of the tank. The maximum capacity is always more than the nominal volume. This is not to be confused with the maximum filling or maximum filling level.
- **Maximum filling**: The maximum filling level of the tank, stated as a percentage of the nominal volume.

- **Nominal volume**: The capacity of the tank specified by the supplier and is the calculated capacity of the tank (storage). This does not include the contents of the manhole.
- **Nominal wall thickness**: Numeric designation of the wall thickness of a component, which is designed to meet the dimensions produced.
- **Relative density**: Also referred to as specific weight or specific density. Quantity that expresses how much mass of a liquid is present in a certain volume. In this evaluation guideline expressed in kg/l.
- **Second containment (spill container)**: The provision for the storage tank(s) that retains its shape and function as a second containment for its designed life as a container for the stored liquids.
- **Soap test**: Technique in which a tank or the interstitial space is checked for leaks with a water/soap solution. The water/soap solution will foam or exhibit air bubbles in the event of a leak.
- **Stationary storage of liquids**: Tank installation which is permanently installed on site.
- **Structural steel**: Steel that has been formed into various forms, such as beams, rods or plates, and is used for load-bearing structural elements. These steels are indicated with an "S".
- **Tank (reservoir)**: Liquid storage location or component where the liquid is stored.
- **Tank installation**: Assembly of tanks, pipes, appendages, fittings and appliances.
- **Total length**: length of the container including second containment and other permanently connected parts.
- **Viscosity**: Viscosity of a liquid is a physical material property which is a measure of its resistance to deformation at a given rate.

3. Procedure for obtaining a quality declaration

3.1. Initial assessment

The initial assessment to be performed is based on the (product) requirements as contained in this evaluation guideline, including the test methods, and comprises the following:

- type testing to determine whether the products comply with the product and/or functional requirements;
- production process assessment;
- assessment of the quality system and the IQC scheme;
- assessment on the presence and functioning of the remaining procedures.

3.2. Granting the certificate

After completing the initial investigation, the results are presented to the Decision maker (see § 8.2). This person evaluates the results and decides whether the certificate can be granted or if additional data and/or tests are necessary before the certificate can be granted.

3.3. Investigation into the product requirements

The certification body will investigate the products to be certified against the certification requirements.

3.4. Productie process assessment

When assessing the production process, it is investigated whether the manufacturer is able to continuously producing products that meet the certification requirements.
The evaluation of the production process takes place during the ongoing work at the manufacturer.
This evaluation includes at least:

- Assessment of the design;
- The suitability of the materials purchased;
- The manufacturing along with the relevant processes required (for example welding, coating application);
- Qualification of the employees;
- Checks during the production process (e.g. inspection of welds);
- Final inspection (e.g. testing for leak tightness of the container tank, liquid tightness of the second containment);
- Internal transport and storage;
- Effectiveness of the quality system;
- Calibration status of the measuring equipment used;
- Identification.

3.5. Contract assessment

If the supplier is not the manufacturer of the products to be certified, the certification body will assess the agreement between the supplier and the manufacturer.
This written agreement, which is available to the certification body, must at least include:
That accreditation bodies, scheme managers and the certification body will be given the opportunity to observe the certification activities carried out by the certification body or on behalf of the certification body at the manufacturer (production location).

4. Product requirements

This chapter contains the product requirements and test methods for steel container tanks of maximum 100 m^3 for the stationary aboveground atmospheric storage of combustible liquids.

4.1. Design

The design of the container tank shall be documented. The design shall meet the requirements stated in this evaluation guideline.

The design shall be documented in a design drawing.

A calculation showing that the design is suitable for the following principles and loads shall be made:
Remark: The calculation may be carried out using the finite element method or an equivalent method.

- The mechanical properties of the material used, minimum S235JR.
- The relative density of the fluid to be stored.
  Remark: A minimum of 1.0 kg/l shall be used for this calculation.
- It shall be possible to completely fill the inner tank with water.
- The design temperature range is from, -20 to +50°C.
- A test pressure of 30 kPa (0.3 bar(g)) for the inner tank.
- If present, a test pressure of 40 kPa (0.4 bar(g)) for the interstitial space, taking into account the external load that the pressure in the interstitial space exerts on the inner tank.
  Remark: When testing for leaks, a procedure may be required for the build-up of the test pressure. In this case a difference of 10 kPa between the pressure of the inner tank and the interstitial space shall always be taken into account.
- Wind load in accordance with EN 1991-1-4 (Eurocode 1). Minimum wind velocity is 27 m/s.
- Snow load in accordance with EN 1991-1-3 (Eurocode 1). Minimum snow load is 70 kg/m^2.
- Earthquakes in accordance with EN 1998-4 (Eurocode 8).
- Loading caused by any other constructions on or on container tanks, if present.
- Load caused by lifting the container tank.
- Connection techniques (welding factor).
- Corrosion tolerance.

Reinforcements may be part of the tank.

The drawing approved for construction by the supplier/tank manufacturer shall be made available for the certification body.

4.2. Design and dimensions of the steel container tank

Manufacture (drawing)
In order to make optimum use of the available space, the storage part of the container tank is not cylindrical. If required for the strength of the structure, curved walls can be used. The bottom plate must have a slope for drainage purposes.
A reference drawing showing the construction of a container tank is included in annex III of this evaluation guideline.

Tank capacity
The minimum nominal capacity of the tank is 5 m^3 (5,000 litres). The maximum nominal capacity of the tank is 100 m^3 (100,000 litres). A tolerance of -0/+ 5% shall apply to the nominal capacity stated by the supplier.

Length - width - height of the container tank
There are no restrictions on the length, width or height of the container tank.

Wall thickness

The nominal wall thickness is determined by the design. The minimum wall thickness is 3 mm. A minimum wall thickness of 6 mm applies to the manhole neck. The nominal wall thickness of the second containment, the walls of the container, and outer skin shall be at least 3 mm.

Provision for spillage

The storage part of the container tank shall be double-walled or placed in a second containment.
If double-walled, the interstitial space (outer skin) shall be fitted to at least a height of 95% of the nominal volume. The interstitial space shall consist of one continuous area (compartmentalization of the interstitial space is not permitted).
If provided with a second containment, then the nominal volume of the second containment shall at least be equal to the nominal volume of the tank. The nominal volume of the second containment is the free space available in the second containment, which is available to receive the fluid from the tank in the event of leakage.

Compartment tank

A container tank can be compartmentalized. The minimum size of the compartment depends on the space required for the manhole and the connections. Each compartment has a sloped bottom and a fluid level indicator pipe that is installed at the lowest point of the compartment. The sum of the volume of the compartments is smaller than or equal to the maximum capacity of the container tank (100 m^3).

Connections

All connections are above the highest liquid level in the container tank.
Container tanks or tank compartments are generally provided with the following connections:

- **Filling line**. The nominal diameter of the filling line is at least DN50. The filling line connection is suitable for filling the tank with a fixed connection. The filling line connection is suitable for the installation of an overfill prevention device that is certified according to the requirements of BRL-K636. To prevent static electricity during filling, the filling line connection is preferably provided with an inner pipe. The end of any inner pipe installed shall have a distance of at least ¼ of the pipe diameter from the bottom of the tank.
- **Vent/aeration**. The nominal diameter of the vent is determined by the diameter of the filling line. The nominal diameter of the aeration connection is determined by the diameter of the suction line and the number of suction lines that can be used simultaneously. In general, the vent is half the diameter of the filling line connection, with a minimum of DN40.
- **Fluid level indicator**. The nominal diameter of the fluid level indicator connection is at least DN40. The fluid level indicator connection is installed at the lowest point of the tank or compartment. The internal pipe of the fluid level indicator connection shall be provided with a 3 mm pressure equalization hole, fitted as high as possible in the inner pipe near the tank wall. The monitoring line must reach 20 mm lower in the tank than the suction line. The monitoring line must be at least ¼ of the pipe diameter from the bottom of the tank or, if present, at the same height as a larger inner line of the filling line.
- **Suction connection/suction pipe**. The maximum diameter of the suction line is DN50. The internal suction pipe must be demonstrably leakproof.

Other connections as specified by the user shall be in accordance with the requirements in the BRL SIKB 7800.
Connections below the highest liquid level are not permitted.

Pump dispenser

Container tanks can be provided with a pump dispenser. The complete tank installation shall be in accordance with the requirements of BRL SIKB 7800.
Remark: As stated in BRL SIKB 7800, the pump is excluded.

4.3. Manholes

A container tank or each compartment of a container tank shall be provided with at least one manhole opening.

A manhole opening is always provided on the top of the tank. A manhole in the side of the tank is possible based on specific wishes of the client, for example insufficient space at the top of the container tank. The requirements below apply for a manhole in the side of the tank:

- The tank is double-walled. The manhole in the side of the tank is also double-walled.

- A cylindrical manhole in the outer tank must at least have a diameter of 200 mm bigger than the diameter of the manhole in inner tank. The manhole in outer tank is in accordance with the general dimensions for cylindrical manholes and their components.
- The side of a rectangular manhole shall be 50 mm more than the sides of the manhole flange in the inner tank. The manhole in the outer tank is in accordance with the general dimensions for rectangular manholes and their components.
- The manhole cover of the manhole in the outer tank is provided with a “davit” or hinge.
- A provision is made at the manhole cover of the inner tank to connect to a “davit”, hinge or other lifting device.
- The leak detection system to use must be in accordance with BRL-K910/EN 13160 class 1.

Tanks or compartments longer than 10 meters shall have two manhole openings. For effective ventilation of the tank or compartment, it is recommended that the manhole openings are spaced as far apart as possible. The manhole opening shall be easily accessible for an internal inspection of the tank. If the tank is placed in a container, the manhole opening shall be accessible for the safe entry of the tank for internal inspections.

A manhole opening may be cylindrical or rectangular.

Cylindrical manholes

The internal diameter of a cylindrical manhole shall be at least 600 mm.
See figure paragraph 4.3 for the implementation of a cylindrical manhole (set-through version).

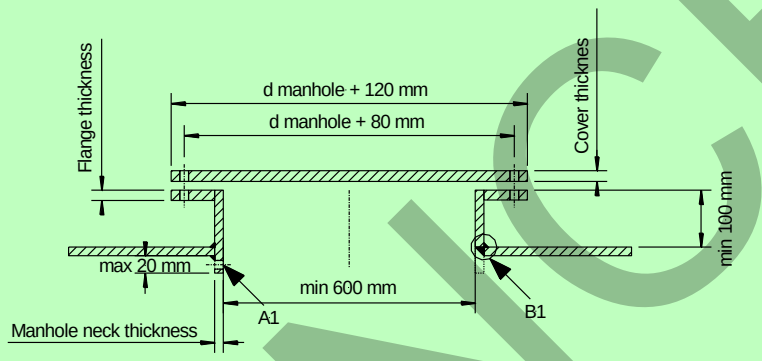

Figure paragraph 4.3: Execution of a set through manhole (indicative)

The general dimensions of cylindrical manholes and the associated components shall at least meet the following requirements.

Inside diameter of manhole (mm)	Manhole neck thickness (mm)	Diameter of bolt holes (mm)	Thread	No. of bolts	Flange and cover thickness (mm)
600	6	18	M16	32	16
700	7			36	18
800	7			44	20
1000	7			48	20
The thicknesses stated are after construction.					

Table 4.3: General dimensions of cylindrical manholes and associated components

Rectangular manholes

The surface area of the manhole opening for a rectangular manhole shall at least be equal to the surface area of a cylindrical manhole opening with an internal diameter of 600 mm. The smallest side of this rectangle shall not be smaller than 400 mm.

The manhole neck thickness for a rectangular manhole is at least 6 mm. The thickness of the flange and lid shall at least be equal to the wall thickness of the tank. Bolts with an M16 thread shall be used to connect the manhole cover.

Other requirements for manholes

The manhole neck may extend to a maximum of 20 mm inside the container tank. Manholes where the neck extends to more than 20 mm inside the tank shall be provided with a hole of at least 10 mm at the highest point in order to guarantee the free movement of vapours.

The manhole gasket shall be easy to open. The manhole cover shall be bolted on.
The sealing surfaces of flanges and covers of manhole and inspection openings shall be sufficiently flat after the manufacture of the container tank. During assembly, the gasket surfaces of the flanges must fit well together when the flange bolts are normally tightened. The seal of the manhole and/or inspection opening shall be "leak tight" during the leak tightness test as indicated in § 4.17.1 of this evaluation guideline.

The gasket shall be free of asbestos, of one-piece and without inserts and fully resistant to the stored liquid. The resistance to the stored liquid must be demonstrated and documented by the supplier/tank manufacturer.

4.4. Lifting lugs

Container tanks shall be provided with at least 4 lifting lugs. The lifting lugs shall be located at the top on each corners of the container tank.

The lifting lugs shall be designed to enable the hoisting of an empty tank without causing any permanent deformations or damage to the container tank.

A lifting instruction shall be included in the user instructions.

4.5. Tank supports

Each container tank shall be equipped with effective tank supports. The supports shall be able to carry the weight of a full container tank and shall be able to withstand all the static and dynamic loads that may occur.
The supplier/tank manufacturer shall be able to submit a strength calculation to the certification body for evaluation purposes.

The supports shall be welded to the container tank.

4.6. Reinforcements

Reinforcements may be part of the container tank.
Reinforcements mounted inside the container tank shall not adversely affect the slope of the tank.
Internal reinforcements shall not obstruct the flow of liquid on the bottom of the container tank nor the flow of vapours on the top of the container tank.

4.7. Construction of the connections

The connections shall be constructed as follows:

- Connections with an external thread shall protrude at least 30 mm from the tank wall and/or manhole cover.
- Screw connections shall be permanently leak-tight.
- Pipe material in which threads are cut shall have a sufficient thickness in order to prevent deformation and/or leakage of the connections after the threads have been cut.
- Welded connections are allowed.
- The connections shall be in accordance with EN 12285-2 Method 5 or 6 of Table 8.
- The connections on cylindrical tanks shall preferably be made in the longitudinal direction of the container tank and be located at the highest point. Deviation from this requirement is not allowed for the liquid level indicator and vent connections of the container tank.
- The distance between two connections shall be such that there is sufficient space available to mount the pipework.
- The minimum distance between 2 welded connections is 25 mm.
- The following standards apply to the connections on the tank:
  - Sealing pipe thread in accordance with ISO 7-1.
  - Threaded steel pipes and sockets in accordance with EN 10241.
  - Seamless steel sockets in accordance with EN 10242.

- The fill connection and fluid level indicator connections are provided with a cap that will give an airtight seal when closed manually. The gasket shall be resistant to the stored fluid.

4.8. Interstitial space/leak detection

The interstitial space shall be designed to withstand a pressure of 40 kPa (0.4 bar (g)) and a vacuum.

The interstitial space (outer skin) is installed such a way that it covers at least 95% of the nominal volume of the container tank. The interstitial space shall form one continuous space (compartmentalization of the interstitial space is not permitted).

The interstitial space is provided with at least two DN 25 connections which are provided with an internal thread in accordance with ISO 7-1. The connections shall be at the highest point.

Container tanks must be equipped with a vacuum leak detection system that complies with BRL-K910. Installation of the leak detection system shall be carried out by an installation company certified in accordance with BRL SIKB 7800.

To prevent corrosion due to condensation in the interstitial space, it must be put under vacuum immediately after it has been constructed.

4.9. Filling connection, fill pipe, overfill protection device and provisions against spillage during filling

The filling connection of the container tank shall be easily accessible and shall be equipped with a provision to prevent spillage caused during filling. This provision shall be in accordance with the requirements of BRL-K21051 scope 2B. The container tank is equipped with an overfill protection device in accordance with BRL-K636.

Installation of the fill pipe, the overfill protection device and the provision against spillage caused during filling shall be carried out by an installation company certified in accordance with BRL SIKB 7800.

4.10. Construction of the second containment/container

The nominal volume of the second containment or container shall be at least equal to the nominal volume of the container tank.
Comment: The second containment can also be part of the container in which the container tank is installed.

The second containment shall be designed such that no permanent deformation occurs when it is completely filled with water. In case the second containment is part of the container, then the container shall be designed such that no permanent deformation occurs when it is completely filled with water. A calculation showing the strength of the second containment and/or container shall be available.

The second containment shall not be provided with a drain.
The second containment shall be protected from rainwater collecting in the second containment.

The entire construction of the second containment or container shall be such that it is possible to inspect the entire container tank externally and to remove it from the second containment if necessary.

4.11. Compartiments

The storage part of the container tank may be divided into compartments.

The compartment disc or plate is fully welded on both sides. The wall thickness of the compartment disc or plate shall at least be equal to the wall thickness of the tank walls.

The welds of each compartment disc or plate shall be dye penetrant tested as described in § 4.16.4 of this evaluation guideline.

4.12. Pump dispenser

A container tank may be provided with a pump dispenser.

If a pump dispenser is provided, then the suction pipe shall include the following:

- a shut-off valve installed at the highest point and as close as possible to the container tank, and
- an anti-siphon protection device in accordance with the requirements of BRL-K916.

Installation of the pump dispenser shall be carried out by an installation company certified in accordance with BRL SIKB 7800.

4.13. Material

The carbon steel of the tank and second containment (and parts of the container that form a part of the container tank or second containment), as well as the manhole opening, the construction of the manhole, lifting lugs, and the tank support shall as a minimum comply with EN 10025-2 Type S235JR.

If high-alloy steel is used for the above parts, this steel shall at least comply with 1.4307 (304 L) according to EN 10028-1 to -7 or EN 10088-1 to -3.

If carbon steel is used, then the inspection documents supplied shall at least be in accordance with EN 10204:2004 article 3.2 (test report “Type 2.2”).
If high-alloy steel is used, then the inspection documents supplied shall at least be in accordance with EN 10204:2004 article 4.1 (inspection certificate “Type 3.1”).

The material used must be resistant to the stored liquid.

Material of the connections and pipes

The material of the connections, and any internal pipes provided, shall be resistant to the stored liquid. Except for the cap and counter flange (ring) of the fluid level indicator and filling line, the material of the connections must not be able to form a galvanic element with the material of the tank. The inner pipes, insofar as they are firmly welded, to the container tank shall be made of steel. The steel shall at least be in accordance with S235JR. The inner pipes must not cause galvanic corrosion within the tank. If the tank is made of another material, for example stainless steel, then the inner pipes must also be made of this material.

4.14. Dimension tolerances

Wall thickness

The minimum wall thickness of the container tank and second containment (and parts of the container that are part of the container tank or second containment), as well as the manhole opening, the construction of the manhole, lifting lugs, and the tank support after fabrication shall not be lower than -10% of the nominal wall thickness.

4.15. Fabrication of the container tank

During the fabrication of the container tank, the following requirements pertaining to the processes used, qualification of personnel and the associated inspection shall apply.

4.15.1. Bending and setting of the sheet material

Bending and setting of the sheet material shall be as far as possible perpendicular to the rolled direction.
Remark: EN 10025-2 provides instructions on the bending of sheet material.

4.15.2. Carbon steel containment of high-alloy steel

When manufacturing container tanks from high alloy steel care shall be taken to avoid any pollution caused by carbon steel particles.
If the surface of the sheet material has not been damaged or contaminated with carbon steel particles, then it is sufficient to pickle the weld seams only. After pickling and completely removing the oxide layer/impurities, the high-alloyed steel must be passivated.

If the machines and tools used for production are also used for the manufacture of carbon steel products, then the high-alloyed steel container tank shall on completion be both pickled and passivated both internally and externally.
The procedure for pickling and passivating must be documented in a procedure.

4.15.3. Preparation of weld seams

The weld seam preparation shall be in accordance with the welding procedure specification.

4.15.4. Welding procedure specification (WPS) and welding procedure qualification (WPQ)

The manufacturer of the container tank shall demonstrably have approved welding procedures for all welds that are used for the production of the container tanks.

Welding procedure specification
The welding procedure specification must comply with:

- EN-ISO 15609-1 “Specification and qualification of welding procedures for metallic materials - Welding procedure specification - Part 1: Arc welding”;
- EN-ISO 15609-2 “Specification and qualification of welding procedures for metallic materials - Welding procedure specification - Part 2: Gas welding”;
- EN-ISO 15609-3 “Specification and qualification of welding procedures for metallic materials - Welding procedures specification - Part 3: Electron beam welding”;
- EN-ISO 15609-4 “Specification and qualification of welding procedures for metallic materials - Welding procedure specification - Part 4: Laser beam welding”.

Remark: Welding procedure specifications prior to 2004 do not meet the above requirements. EN-ISO 15609 has replaced EN 288. It is possible that EN 288 welding procedure specifications are rewritten in accordance with EN-ISO 15609, but this is only possible if all the relevant parameters of the original WPS are well documented. The tank manufacturer shall have to demonstrate this. In all other cases the welding procedure specification shall have to be rewritten and tested again.

The manufacturer of the container tanks must maintain a documented system in which the welding procedure specification can be traced to the welding procedure qualification.

Welding procedure qualification
The welding procedures must be qualified according to the following standards:

- EN-ISO 15607 "Specification and qualification of welding procedures for metallic materials - General rules";
- EN-ISO 15614-1 "Specification and qualification of welding procedures for metallic materials - Welding procedure test - Part 1: Arc and gas welding of steels and arc welding of nickel and nickel alloys".

The welding procedure qualification shall be assessed by an independent body, selected by the manufacturer of the container tank and accepted by the certification body.

4.15.5. Welder qualifications

The qualifications of welders and operators of welding machines shall meet:

- EN-ISO 9606-1 “Qualification testing of welders - Fusion welding - Part 1: Steels”;
- EN-ISO 14732 “Welding personnel - Qualification testing of welding operators and weld setters for mechanized and automatic welding of metallic materials”.

The initial qualification of a welder or operator of welding machines shall be issued by an independent body, selected by the manufacturer of the container tank and accepted by the certification body.
An extension of the welding qualification shall be issued by an independent body, selected by the manufacturer of the container tank and accepted by the certification body.

Every 6 months the manufacturer of the container tank will document that the welder or operator of a welding machine is still working within the scope of the welding qualification.

The manufacturer of the container tank shall have a documented system in which welders' qualifications are managed and maintained. The issue, the extension and the confirmation of the welder qualifications shall be documented.

4.16. Inspection of welds

After completion, the welds of the container tank and second containment (and those parts of the container that are part of the container tank or second containment), as well as the manhole opening, the construction of the manhole, the lifting lugs and the tank supports shall be visually assessed.

The welds of the container tank shall be assessed by means of a radiographic, magnetic particle or dye penetrant testing in accordance with the applicable frequency as stated in § 4.16.5 of this evaluation guideline.
Remark: Radiographic testing applies to cylindrical tanks, Magnetic particle testing (or dye penetrant testing) applies to non-cylindrical tanks.

4.16.1. Visual inspection of welds

The welds of each container tank shall be visually inspected.
The welds of the tank, second containment, tank supports and lifting lugs shall at least meet the requirements of EN-ISO 5817 quality level D.
If during a visual inspection it is determined that a weld may not meet the required standard, it must be assessed and remeasured in accordance with EN-ISO 6520-1 and EN-ISO 5817 and repaired if necessary. The repair shall be visually re-inspected.

4.16.2. Radiographic testing

The butt welds of a container tank (tank section) shall be inspected by means of a radiographic testing.

The radiographic testing shall be performed in accordance with the following standards:

- EN-ISO 17636-1 "Non-destructive testing of welds - Radiographic testing - Part 1: X- and gamma-ray techniques with film";
- EN-ISO 10675-1 "Non-destructive testing of welds - Acceptance levels for radiographic testing - Part 1: Steel, nickel, titanium and their alloys".

The radiographic testing shall be performed in accordance with EN-ISO 17636-1 Class B. A radiographic test on a cylindrical tank consists of two X-rays. A film on which the longitudinal seam is photographed at the location of an intersection and a film on which the circumference seam is photographed at the location of an intersection.

The examined welds shall at least comply with EN-ISO 10675 Class 3 (corresponds to EN-ISO 5817 Level D).

The radiographic testing shall be carried out by a person who is demonstrably qualified for this work, for example RT level 1 or RT level 2 or equivalent. The assessment of a radiographic testing shall be performed by a person who is demonstrably qualified for this work, for example RT level 3 or IWE or equivalent. The assessment is not carried out by a person who was directly involved in the welding of the container tank.

The radiographic testing may also be carried out by an external inspection agency that has been selected by the manufacturer of the container tank and accepted by the certification body.

A report of the radiographic examination that is traceable to the container tank under investigation shall be made available.

4.16.3. Magnetic particle testing

Corner welds of the container tanks (tank sections) shall be subjected to sampling inspection using the magnetic particle method.

The following standards apply to magnetic particle testing:

- EN-ISO 17638 "Non-destructive testing of welds - Magnetic particle testing";
- EN-ISO 23278 "Non-destructive testing of welds - Magnetic particle testing - Acceptance levels".

The magnetic particle testing shall be carried out in accordance with EN-ISO 17638. A magnetic particle test of a container tank shall comprise 10% of the corner welds.

The welds inspected shall at least comply with EN-ISO 23278 Class 3X (corresponds to EN-ISO 5817 Level D).

Magnetic particle testing shall be carried out by a person who is demonstrably qualified for this work, for example MT level 1 or equivalent. The assessment of a magnetic examination must be carried out by a person who is demonstrably qualified for this work, for example MT level 2, IWE or equivalent. The assessment shall not be carried out by a person who was directly involved in the welding of the container tank.
The magnetic particle testing may also be carried out by an external inspection agency, that has been selected by the manufacturer of the container tank and accepted by the certification body.

A report of the magnetic particle examination that is traceable to the container tank under investigation shall be made available.

4.16.4. Dye penetrant testing

The welds of a compartment section shall be inspected by means of liquid penetrant testing.

The following standard applies to dye penetrant testing:

- EN-ISO 3452-1 “Non-destructive testing - Penetrant testing - Part 1 General principles”.

The dye penetrant testing shall cover 100% of the welded compartment section.

No indications of leakage from one compartment to another may be observed during the penetrant examination. Furthermore, the dye penetrant testing shall be in accordance with EN-ISO 5817 Level D.

Dye penetrant testing shall be carried out by a person who is demonstrably qualified for this work, for example PT Level 1 or equivalent. The assessment of a dye penetrant testing shall be carried out by a person who is demonstrably qualified for this work, for example PT Level 2 or equivalent. The assessment shall not be carried out by a person who was directly involved in the welding the compartment section.

A report of the liquid penetrant examination that is traceable to the compartment section of the container tank under investigation shall be made available.

4.16.5. Frequency of radiographic, magnetic particle and dye penetrant testing

The inspection frequency applicable to container tanks is as stated below.

Visual inspection of the welds:
All welds of each container tank shall be visually inspected.

Radiographic and magnetic particle testing of the container tank welds
10% of the complete production of container tanks shall be subjected to radiographic testing and magnetic particle testing. The butt welds shall be examined using radiographic testing and the corner welds shall be examined using magnetic particle testing.
This means that radiographic or magnetic particle testing shall be carried out on at least 1 out of 10 tanks produced in accordance with this evaluation guideline.
During the initial evaluation, all container tanks shall be radiographic and magnetic tested.

Dye penetrant testing
Each compartment section shall be subjected to dye penetrant test.

In the event of unacceptable welding imperfections, the manufacturer of container tanks shall take the necessary measures to prevent these faults from occurring.

For inspections resulting in rejections: All errors found shall be repaired. The repaired area shall be re-inspected. If defects found during radiographic testing, run to the edge of the film, the adjacent areas must also be photographed. If errors are also found in these areas, 100% of the relevant weld must be photographed. The examination of the repaired areas is not included in the determination of the testing frequency.

4.17. Testing

Container tanks and the interstitial space, if present, shall be pneumatically pressure tested for leak tightness.
Second containment shall be tested for liquid tightness.
These tests shall be performed before the application of the corrosion protection system.

4.17.1. Testing of the container tank for leak tightness

Each container tank or compartment shall be tested for leak tightness with air at a pressure of 30 kPa (0.3 bar(g)).
Remark: The container tank or compartment shall not be tested against vacuum.

The test pressure is measured by means of a (digital) manometer, the accuracy of which is traceable to a calibration standard.
Comment: Measurement data stored in a digital manometer can be used as supporting evidence by the certification body.

General testing sequence of the tank or compartment with air:

- Pressurize the tank or compartment.
- When the correct test pressure has been reached, the air supply (valve) on the container tank or compartment shall be shut off and the compressed air supply shall be disconnected.
- Wait until the pressure has stabilized (due to temperature and setting of plates).
- After stabilization, the connections, the manhole seals and all welds shall be checked for leak tightness using a soap solution. No indications of leakage shall be observed.
- The pressure on the container tank or compartment shall be maintained for at least 15 minutes. No inexplicable pressure drop may occur.
- Leaks shall be repaired, and the test repeated in accordance with the above method.

Remark 1: No permanent deformation of the container tank shall occur as a result of this test.
Remark 2: The container tank or compartment including the manhole cover to be supplied shall be "airtight".

The container tank or compartment is determined to be leak tight when there is no inexplicable loss of pressure during the test and when no leaks are visible when the container tank or compartment is being tested with the soap solution.

The leak tightness test is not performed by the person who was directly involved in the production of the tank.

A registration or report of the leak tightness test, which can be traced back to the tested container tank, shall be available.

4.17.2. Testing of the interstitial space for leak tightness

Each interstitial space shall be tested for leak tightness.
The test pressure for the interstitial space of a double-walled tank is 40 kPa (0.4 bar(g)).
Remark: It is inadvisable to set the test pressure higher than 40 kPa (0.4 bar(g)) due to the risk of implosion of the inner tank.

The test pressure is checked by means of a (digital) manometer, the accuracy of which is traceable to a calibration standard.

General testing sequence of the interstitial space with air:

- When the inner tank is ready, it is brought to an overpressure of 30 kPa and checked for leaks by means of a soap solution.
  Remark: Alternatively, the welds of the container tank that will no longer be visible when the double-wall has been installed can be tested by means of a dye penetrant examination.

- A record of this test, that is traceable to the tested container tank, shall be made.
- After the entire container tank (inside and outside tank) has been finished, the inside tank is brought to an overpressure of 30 kPa and the visible welds of these are tested using a soap solution.
- After pressurizing the inner tank, wait until the pressure has stabilized (due to temperature and settling of plates).
- After stabilization, the connections, the manhole seals and all visible welds shall be checked for leak tightness using a soap solution. No indications of leakage shall be observed.
- The pressure of the tank shall be maintained for at least 15 minutes. No inexplicable pressure drop may occur.
- With the pressure still on the inner tank, the interstitial space is pressurized to an overpressure of 40 kPa.
- After stabilization, the connections and all welds of the interstitial space shall be tested using a soap solution. No indications of leakage shall be observed.
- The pressure on the interstitial space shall be maintained for at least 15 minutes. No inexplicable pressure drop may occur.
- If no leaks are found, the pressure is first removed from the interstitial space.
- Finally, the inner tank is then made pressure less.
- Leaks shall be repaired, and the test repeated in accordance with the above method.
  Remark: No permanent deformation of the container tank shall occur as a result of this test.

The interstitial space is determined to be leak tight when there is no inexplicable loss of pressure (or less than the indicated pressure loss is observed) during the test and when no leaks are visible when the container tank or compartment is being tested with the soap solution.

The leak tightness test is not performed by the person who was directly involved in the production of the tank.

A registration or report of the leak tightness test, which can be traced back to the tested interstitial space, shall be available.

4.17.3. Liquid-tightness of the second containment

Each second containment shall be tested for liquid tightness. All welded joints that are below the maximum liquid level shall be tested for leaks prior to the application of the corrosion protection system. This can be tested by filling the second containment entirely with water or by another comparable method (e.g. dye penetrant testing, vacuum box, etc.). The chosen method must be able to establish that the water did **not** reach the unloaded side of the second containment.

If a method other than water filling is used, this method shall be documented by the manufacturer of the container tank in a procedure that has been accepted by the certification body.

Leaks shall be repaired and then the second containment shall be tested again in accordance with the above method.

The second containment is found to be leak-tight if no fluid leakage is visible on the unloaded side.

The leak tightness test is not performed by the person who was directly involved in the production of the second containment.

A registration or report of the leak tightness test, which can be traced back to the tested second containment, shall be available.

4.17.4. Test for leak tightness of (welded) suction pipes

A leak in a welded suction pipe shall result in the suction pump being unable to pump the stored fluid.
The connections of suction pipes in and on the container tank shall be tight and sufficiently robust so that no leakage occurs due to deformation after the fitting of the pipework.

4.18. Protection against corrosion

A carbon steel container tank shall be provided with a corrosion protection system.
Container tanks constructed from high-alloy steel do not require a corrosion protection system.

4.18.1. External protection using a paint system

The outside of the container tank and second containment shall be provided with a corrosion protection system.

For this purpose, a durable paint system with a life expectancy of at least 15 years (= high), in accordance with the atmospheric corrosion category as indicated in EN-ISO 12944-2 shall be used.

The minimum atmospheric corrosion category for outdoor installation in an environment with high humidity and moderate pollution is C3.

The paint system must be applied by a company certified in accordance with the requirements of scope 6 of BRL-K790 "The application of coating systems to steel pipes or steel storage tanks for liquids".

The buyer/installation company shall specify the atmospheric corrosion category that the paint system on the container tank must comply with when ordering the tank.
Remark 1: The determination of the atmospheric corrosion category is the responsibility of the certified installation company.
Remark 2: To prevent evaporation of the stored product, it is recommended to provide the container tank with a light-coloured paint with a high radiation reflection.

4.18.2. Corrosion protection using hot-dip galvanizing

Parts of the container tank can be hot dip galvanized provided that a comparable level of protection is obtained as with the application of a coating or paint system, as indicated in § 4.18.1 of this evaluation guideline.

Hot dip galvanizing shall be carried out in accordance with EN-ISO 1461.

The following aspects regarding hot-dip galvanizing require consideration:

- Control of the with molten zinc bath (other metals).
- Data regarding the highest and lowest limits in relation to the thickness of the steel used. See tables 3 and 4 of EN-ISO 1461.
- The measurements required along with the required measuring equipment.

4.19. Internal corrosion protection

As an option, the inside of a carbon steel container tank can be provided with an corrosion protection system.

The inside of the tank can be provided with an internal coating. In that case use can be made of the following evaluation guidelines:

- BRL-K758 "Coating suitability of metal products to be coated";
- BRL-K779 "Internal coating of steel tanks for flammable liquids";
- BRL-K790 "Application of coating systems to steel pipes or steel storage tanks for liquids".

Remark: Only cylindrical tanks are eligible for an effective internal coating to be applied. In the case of non-cylindrical tanks, the wall deformation will have to be taken into account and can result in possible cracking.

4.20. Indentification

The following information shall be provided on each container tank:

- Name of the supplier or his trademark;
- Container tank number (identification number);
- Year of manufacture (will not apply if the container tank number provides this information);
- Nominal volume in m^3 or litres;
- The design pressure (atmospheric) of the container tank;
- The maximum specific gravity of the fluid that can be stored in the container tank;

- Tank type (single- or double-walled);
- Tank material (carbon steel or stainless steel);
- Weight of the empty container tank;
- The word mark "KIWA";
- The corrosion protection category of the paint system used.

In the case of a single-walled container tank, the second containment shall be provided with the same identification number as the container tank and with include the word “BAK”.

The above mentioned information is indelibly marked on a corrosion-resistant identification plate. The identification plate shall be made of a durable material (for example brass, bronze, aluminium or stainless steel). The identification plate must be affixed by means of rivets, or by other similar durable means, on an underlying steel strip that is welded to the container tank. The identification plate shall be placed on a clearly visible location on the outside of the container tank.

The identification number must also be stamped into the manhole flange or neck or at another recognizable place (welded-on strip).

4.21. User instructions

The supplier of the container tank must supply instructions for the use of the container tank and draw the users' attention to those aspects that may endanger humans, animals and/or the environment. Also, aspects that may have a negative effect on the life expectancy, as well as all other aspects that the supplier deems worth mentioning shall be included in these instructions.

At least the following aspects shall be included in the instructions for use of the container tank:

- Proposed use of the container tank and the liquid to be stored in it.
- The instructions must stipulate the compliance with the local laws and regulations at the place of installation.
- The materials used, tank material, gaskets and the (internal) pipework.
- Important information is to be recorded prior to the delivery of the container tank in order to prevent misunderstandings (such as capacity, single-walled construction in combination with a second containment or double-walled construction, pipe connections, gasket material, etc.).
- Reference to the “as built” drawing.
- Reference to and explanation of the container tank declaration of conformity.
- The maximum capacity and instruction for filling the container tank.
- Information on the external corrosion protection provided on carbon steel tanks (atmospheric corrosion category, environmental conditions, expected life expectancy, etc.).
- Information on the internal corrosion protection information, if applicable.
- Guidance for the user pertaining to the parts covering the overfill protection as supplied by the supplier/tank manufacturer.
- Guidance for the user pertaining to the parts covering the leak detection system as supplied by supplier/tank manufacturer.
- Warning regarding the maximum pressures allowable in the tank and the interstitial space. The interstitial space is not designed for high pressures. Pressures above 40 kPa (0.4 bar (g)) can lead to the implosion of the inner container tank.
- Lifting instructions.
- Information regarding the mandatory inspections and checks.
- Operating instructions for the delivery system, if supplied.
- Drawings, data and declaration of conformity tank shall be retained for at least 15 years by the Kiwa certified company.

4.22. Transport, handling, aftercare

Upon delivery, the tank shall be internally clean.

All unused connections shall be sealed prior to transport.

While awaiting delivery to the buyer, the supplier/tank manufacturer shall provide suitable storage locations or warehouse space to prevent damage or deterioration of the quality of the container tank.

The supplier/tank manufacturer is responsible for loading and transporting the container tank (or outsourcing it) from the production site to the place of destination and the unloading on site, unless otherwise contractually agreed with the buyer.

General/piping:
The supplier/tank manufacturer shall clearly mark the fluid level indicator connection(s).

4.23. Installation work

The aboveground container tank for the Dutch market should preferably be installed in accordance with BRL SIKB 7800 “Tank installations” with the issue of an installation certificate by a certified installer.

5. Marking

5.1. General

See § 4.20 of this evaluation guideline for detailed information on the identification markings to be applied on new container tanks.

5.2. Certification mark

After entering into a certification agreement with Kiwa, the product shall be indelibly marked with the word mark "KIWA".

6. Requirements in respect to the quality system

This chapter contains the requirements that have to be met by the certificate holders quality system.

6.1. Manager of the quality system

Within the organizational structure, an employee who will be in charge of managing the quality system must have been appointed.

6.2. Internal quality control/quality plan

The supplier shall have an internal quality control scheme (IQC scheme) which is applied by them.

The following must be demonstrably recorded in this IQC scheme:

- which aspects must be inspected by the supplier;
- according to what methods such inspections are carried out;
- how often these inspections are carried out;
- in what way the inspection results are recorded and kept.

The IQC scheme shall have an index, version date and number and be validated by the quality system manager. This IQC scheme should at least be an equivalent derivative of the model IQC scheme as shown in annex IV. The schedule must be detailed in such a way that it provides the certification body with sufficient confidence that requirements will be continuously fulfilled.

Certified companies may use a documented quality assurance system instead of an IQC scheme provided it is supplemented with a checklist. The documented quality assurance system must include the procedures required by this evaluation guideline.

At the time of the initial assessment, the IQC scheme or quality assurance system shall have functioned for at least 1 month.

6.3. Procedures and working instructions

The supplier shall be able to submit the following:

- procedures for:
  - dealing with products with deviations;
  - corrective actions to be taken if non-conformities are found;
  - dealing with complaints concerning products and/or services delivered;
- the working instructions and inspection forms used.

Products or services with deviations

The certified company shall have a procedure covering products or services with deviations in order to prevent any deviations in the (production) process from influencing the quality of the final product.
Remark: A product can also be a service.

Corrective actions

The certified company shall have a procedure for taking the necessary corrective actions in the case of non-conformities. The cause of the non-conformity shall be investigated, and feedback given to the relevant department.

Complaints procedure

The certified company shall have a procedure covering the handling of complaints concerning the product delivered. This procedure shall include at least the following points:

- A written procedure for handling complaints.
- A person responsible shall be assigned within the company for handling complaints.
- Complaints shall be registered.
- Feedback shall be given to the relevant department as a result of complaints.

The corrective measures resulting from the complaints shall be recorded.

6.4. Registration/checklist

During production, the processes used and the inspections and tests carried out shall be recorded on a checklist.

6.5. Management of test and measuring equipment

The certified company shall determine which test and measuring equipment are required in order to demonstrate that the product meets the requirements of this evaluation guideline.

When necessary, and where indicated in this evaluation guideline, test and measuring equipment shall be calibrated at specified intervals.

The certified company shall assess the validity of the previous tests and measurements made if the calibration reveals that the testing or measurement equipment is not functioning properly.

The test and measuring equipment must be provided with an identification that allows the calibration status to be determined.

The certified company shall record the results of all calibrations.

The certified company shall have the necessary test and measuring equipment. These resources shall also be made available to the site assessor of the certification body. This includes amongst others the equipment for leak testing, wall thickness measurements, lighting with the required light intensity for tank inspections, coating thickness meter etc.

6.6. Other requirements for the quality system

The certificate holder shall be able to submit the following:

- the organisation's organogram;
- qualification requirements of the personnel concerned.

Quality system

If an organization has a quality system based on EN-ISO 9001, then where possible, reference can be made to procedures or instructions that form part of this quality system.

Changes

The certification body shall be informed in the event of changes that may have consequences for the quality of the products (including design changes or changes in production) and processes. The certification body then determines whether additional assessment is required.

Work instruction and procedures

In addition, the following documentation or model reports may be added to the IQC scheme and/or documented quality system:

- A documented system for the welding procedures;
- A documented system for the management and maintenance of welder qualifications;
- A model report for the visual inspection of the welding work;
- A model (report) which confirms that the leak tightness test has been carried out;
- A production card that shows the present stage of production.

Documents/drawings

Container tanks shall be produced on the basis of an approved design that is detailed in documents/drawings.

Declaration of conformity tank

The certified company shall, upon delivery of the container tank, prepare a declaration of conformity tank and make this available to the purchaser. The certification body will provide instructions for the preparation of the declaration of conformity tank.

7. Summary of tests and inspections

This chapter contains a summary of the tests and inspections to be carried out in the event of certification:

- **initial assessment:** tests in order to ascertain that all the requirements recorded in the evaluation guideline are met;
- **surveillance assessment:** tests carried out after the certificate has been granted in order to ascertain whether the certified products continue to meet the requirements recorded in the evaluation guideline; the required frequency for the follow-up investigation by the certification body is also specified;
- **inspection of the quality system of the supplier:** monitoring compliance of the IQC scheme and procedures.

7.1. Test matrix

Description of requirement	BRL article no.	Class	Investigation within the scope of		
			Initial assessment	Inspection by certification body after certification	
				Surveillance assessment test	Frequency
Product requirements					
Error! Reference source not found.	4.1	1	Yes	Yes	1/5 tanks
Error! Reference source not found.	4.2	1	Yes	Yes	1/5 tanks
Error! Reference source not found.	4.3	1	Yes	Yes	1/5 tanks
Error! Reference source not found.	4.4	1	Yes	Yes	1/5 tanks
Error! Reference source not found.	4.5	1	Yes	Yes	1/5 tanks
Error! Reference source not found.	4.6	1	Yes	Yes	1/5 tanks
Error! Reference source not found.	4.7	1	Yes	Yes	1/5 tanks
Error! Reference source not found.	4.8	1	Yes	Yes	1/5 tanks
Error! Reference source not found.	4.9	1	Yes	Yes	1/5 tanks
Error! Reference source not found.	4.10	1	Yes	Yes	1/5 tanks
Error! Reference source not found.	4.11	1	Yes	Yes	1/5 tanks
Error! Reference source not found.	4.12	1	Yes	Yes	1/5 tanks
Error! Reference source not found.	4.13	2	Yes	Yes	1 x per year
Error! Reference source not found.	4.14	2	Yes	Yes	1 x per year
Error! Reference source not found.	4.15.1	1	Yes	Yes	1 x per year
Error! Reference source not found.	4.15.2	1	Yes	Yes	1 x per year
Error! Reference source not found.	4.15.3	1	Yes	Yes	1 x per year
Error! Reference source not found.	4.15.4	1	Yes	Yes	1 x per year
Error! Reference source not found.	4.15.5	1	Yes	Yes	1 x per year
Error! Reference source not found.	4.16.1	1	Yes	Yes	Each visit
Error! Reference source not found.	4.16.2	1	Yes	Yes	1 x per year/each visit
Error! Reference source not found.testing	4.16.3	1	Yes	Yes	1 x per year/each visit
Dye penetrant testing	4.16.4	1	Yes	Yes	1 x per year/each visit
Error! Reference source not found.	4.16.5	1	Yes	Yes	1 x per year/each visit
Testing of the container tank for leak tightness	4.17.1	1	Yes	Yes	Each visit
Error! Reference source not found.	4.17.2	1	Yes	Yes	Each visit, if applicable
Error! Reference source not found.	4.17.3	2	Yes	Yes	Each visit, if applicable
Error! Reference source not found.	4.17.4	2	Yes	Yes	Each visit, if applicable
Error! Reference source not found.	4.18.1	2	Yes	Yes	Each visit
Error! Reference source not found.	4.18.2	2	Yes	Yes	Each visit, if applicable

Description of requirement	BRL article no.	Class	Investigation within the scope of		
			Initial assessment	Inspection by certification body after certification	
				Surveillance assessment test	Frequency
Error! Reference source not found.	4.19	3	Yes	Yes	Each visit, if applicable
Error! Reference source not found.	4.20	1	Yes	Yes	1/5 tanks
Error! Reference source not found.	4.21	2	Yes	Yes	1 x per year
Error! Reference source not found.	4.22	3	Yes	Yes	1 x per year
Error! Reference source not found.	4.23	2	Yes	Yes	1 x per year
Marking					
Error! Reference source not found.	5.2	2	Yes	Yes	Each visit
Quality system requirements					
Error! Reference source not found.	6.1	2	Yes	Yes	1 x per year
Error! Reference source not found.	6.2	2	Yes	Yes	1 x per year
Error! Reference source not found.	6.3	2	Yes	Yes	1 x per year
Error! Reference source not found.	6.4	2	Yes	Yes	1 x per year
Error! Reference source not found.	6.5	2	Yes	Yes	1 x per year
Error! Reference source not found.	6.6	2	Yes	Yes	1 x per year

Explanation of classes: Non-conformities may be found during the inspection visits. These non-conformities are classified according to the following classes:

1 = Critical: These non-conformities can result in dangerous or unsafe situations. The supplier shall, in consultation with the certification body, take the required corrective actions within two weeks. Exceeding this period shall result in a suspension of the certificate.

2 = Important: These non-conformities affect the quality of the product in the longer term. The supplier shall, in consultation with the certification body, take the required corrective actions within three months. Exceeding this period shall result in a suspension of the certificate.

3 = Less important: These non-conformities are less important but shall be corrected in the long term. This is checked by the certification body during the next inspection visit.

During the initial assessment, type tests shall be performed to determine if the product complies with the prescribed requirements. The requirements that shall be met are stated in the test matrix above. In the event of changes to the material used or the supplier, the type tests shall be repeated.

Also, the quality system of the supplier/manufacturer shall be assessed during the initial assessment.

After certification, the certification body shall carry out periodic visits (surveillance assessments) to ensure that the supplier/manufacturer continuously meets the requirements of this evaluation guideline. Some type tests will have to be repeated during these surveillance assessments.

7.2. Inspection of the quality system of the supplier

The quality system of the supplier will be checked by the certification body.
The inspection consists of at least those aspects mentioned in chapter 7.

8. Agreements on the implementation of certification

8.1. General

The certification body must have a procedure in place in which the general regulations used for certification are established.

8.2. Certification staff

The staff involved in the certification may be sub-divided into:

- Certification assessor/Reviewer (**CAS/RV**): in charge of carrying out the design and documentation evaluations, pre-certification tests, initial investigations, and evaluation of applications and reviewing conformity assessments.
- Site assessor (**SAS**): in charge of carrying out external inspections at the supplier's works;
- Decision maker (**DM**): in charge of taking decisions in connection with the pre-certification tests carried out, continuing the certification based on the inspections carried out and taking decisions on the need to take corrective actions.

8.2.1. Qualification requirements

The qualification requirements consist of:

- Qualification requirements for personnel of a certification body which satisfies the requirements EN ISO/IEC 17065, performing certification activities.
- Qualification requirements for personnel of a certification body performing certification activities set by the Board of Experts for the subject matter of this evaluation guideline.

Education and experience of the concerning certification personnel shall be recorded.

	Certification assessor/(Application) Reviewer	**Site assessor**	**Decision maker**
Basis competence			
Knowledge of business processes and ability for professional evaluation	• Bachelor degree or similar work and reasoning level • 1 year of relevant working experience	• Vocational education at intermediate level or similar work and reasoning level • 1 year of relevant working experience	• Bachelor degree or similar work and reasoning level • 5 years of working experience with a minimum of 1-year experience with certification
Audit skills	• Training in audit skills • Minimum of 4 complete audits of which at least 1 has been carried out independently and witnessed for qualification	• Training in audit skills • Minimum of 4 complete audits of which at least 1 has been carried out independently and witnessed for qualification	Not applicable
Technical competence			
Knowledge of this BRL	• Detailed knowledge of this BRL and a minimum of 4 complete audits for this BRL or for related BRL's	• Detailed knowledge of this BRL and a minimum of 4 complete audits for this BRL or for related BRL's	Not applicable
Relevant knowledge of: • The technology related to the manufacturing of the products to be inspected, the performance of these processes and the provision of these services • The manner in which the products are used, the processes are	• Relevant technical education at Bachelor degree or similar work and reasoning level • Detailed knowledge of cluster related BRL's	• Relevant technical vocational education at intermediate level or similar work and reasoning level • Detailed knowledge of cluster related BRL's	Basic knowledge of test and inspection techniques.

	Certification assessor/(Application) Reviewer	Site assessor	Decision maker
performed and the services are provided • Any defect which may occur during the use of the product, any error in the execution of processes and any inadequacies in the provision of services	• Visual welding inspector VT-w Level 2 or equal	• Visual welding inspector VT-w Level 1 or equal	

8.3. Report initial assessment

The certification body records the results of the initial investigation in a report. This report shall comply with the following requirements:

- completeness: the report provides a verdict about all requirements included in the evaluation guideline;
- traceability: the findings on which the verdicts have been based shall be recorded and traceable;
- basis for decision: the decision maker shall be able to base their decision on the findings included in the report.

8.4. Decision for grantin the certificate and/or imposition of measures

The decision for granting the certificate or the imposition of measures with regard to the certificate shall be based on the results recorded in the file.
The results of an initial investigation and a periodic assessment (in case of critical non-conformities) must be assessed by a reviewer.
Based on the performed review, the decision maker will decide if:

- The certificate can be granted.
- Sanctions are imposed.
- The certificate shall be suspended or revoked.

The reviewer and the decision maker shall not have been involved in the preparation of the results based on which the decision is being made.
The decision shall be recorded in a traceable manner.

8.5. Layout of quality declaration

The product certificate shall be in accordance with the model included in annex I. The declaration of conformity tank shall be in accordance with the model included in annex II.

8.6. Nature and frequency of external tests and inspections

The certification body shall carry out surveillance assessments on site at the supplier to verify compliance with their obligations. The Board of Experts decides on the frequency of assessments.

At the time this evaluation guideline entered in force, the frequency of assessments has been determined at 1 assessment per 5 tanks produced under certificate with a maximum of 5 assessments per year.

The assessment program on site shall cover at least:

- the product requirements;
- the production process;
- the suppliers IQC scheme and the results obtained from inspections carried out by the supplier;
- the correct marking of the certified products;
- compliance with the required procedures;
- handling of complaints concerning the delivered products.

The results of each assessment shall be reported by the certification body in a traceable manner.

8.7. Nonconformities

When the certification requirements are not met, measures are taken by the certification body in accordance with the sanctions policy as written in the Kiwa Regulation for Certification. The Kiwa Regulation for Certification is available on the Kiwa website.

The following applies with regards to the relevance, follow-up of nonconformities, and the sanctions policy.

Severity of nonconformities

The severity of the issued nonconformity in relation to the assessment conducted after granting the product certificate by certification body can be differentiated as follows:

- Nonconformities entitled as critical are deviations that can directly affect the quality and/or performance of product and/or process.
- "Other" nonconformities (non-critical nonconformities).

Follow-up nonconformities

The follow-up procedure for nonconformities by a certification body is as follows:

- The certification body shall be able to deal with critical nonconformities within the time frame established by the certification body, but shall not exceed the maximum term of 10 business days.
- The certification body shall be able to deal with non-critical nonconformities within the time frame established by the certification body, but shall not exceed the maximum term of 3 months.

8.8. Report to the Board of Experts

The certification body shall report at least annually about the performed certification activities. In this report the following aspects shall be included:

- mutations in number of issued certificates (granted/withdrawn);
- number of executed assessments in relation to the established minimum;
- results of the inspections;
- measures imposed in case of nonconformities;
- complaints received from third parties about certified products/processes.

8.9. Interpretation of requirements

The Board of Experts may record the interpretation of requirements of this evaluation guideline in one or more separate interpretation document(s). This or those interpretation documents will be available to the members of the Board of Experts, the certification bodies, and the certificate holders who are active based on this evaluation guideline. This or those interpretation documents will be published on Kiwa's website.

9. List of referenced documents

9.1. Standards/normative documents

Public law regulations:	**Title**
EURAL	European Waste Catalogue

Evaluation Guideline:	**Title (Evaluation guideline for the certification of):**
BRL-K21051	Steel tanks and spill containers.
BRL-K758	Coating suitability of metal products to be coated.
BRL-K636	Overfill prevention devices for storage tanks for liquid petroleum fuels.
BRL-K779	Internal coating of steel tanks for flammable liquids.
BRL-K790	Application of coating systems on steel pipes or steel storage tanks for liquids.
BRL-K910	Leak detection systems intended for the storage and/or transport of liquid/gaseous products.
BRL-K916	Anti-siphon devices for tank installations.
BRL SIKB 7800	Tank installations.

Standards:	**Title**
ISO 7-1 part 1	Pipe threads where pressure-tight joints are made on the threads – Part 1: Dimensions, tolerances and designation.
EN 288-1 (withdrawn)	Specification and approval of welding procedures for metallic materials - Part 1: General rules for fusion welding.
EN 288-2 (withdrawn)	Specification and approval of welding procedures for metallic materials - Part 2: Welding procedure specification for arc welding.
EN 288-3 (withdrawn)	Specification and approval of welding procedures for metallic materials - Part 3: Welding procedure tests for the arc welding of steels.
EN 1991-1-3	Eurocode 1: Loads on structures - Part 1-3: General loads - Snow loads.
EN 1991-1-4	Eurocode 1: Loads on structures - Part 1-4: General loads - Wind loads.
EN 1998-4	Eurocode 8 - Design of structures for earthquake resistance - Part 4: Silos, tanks and pipelines.
EN 10025-1	Hot rolled products of structural steels - Part 1: General technical delivery conditions.
EN 10025-2	Hot rolled products of structural steels - Part 2: Technical delivery conditions for non-alloy structural steels.
EN 10025-3	Hot rolled products of structural steels - Part 3: Technical delivery conditions for normalized/normalized rolled weldable fine grain structural steels.
EN 10025-4	Hot rolled products of structural steels - Part 4: Technical delivery conditions for thermomechanical rolled weldable fine grain structural steels.
EN 10025-5	Hot rolled products of structural steels - Part 5: Technical delivery conditions for structural steels with improved atmospheric corrosion resistance.
EN 10025-6	Hot rolled products of structural steels - Part 6: Technical delivery conditions for flat products of high yield strength structural steels in the quenched and tempered condition.
EN 10028-1	Flat products made of steels for pressure purposes - Part 1: General requirements.
EN 10028-2	Flat products made of steels for pressure purposes - Part 2: Non-alloy and alloy steels with specified elevated temperature properties.
EN 10028-3	Flat products made of steels for pressure purposes - Part 3: Weldable fine grain steels, normalized.
EN 10028-4	Flat products made of steels for pressure purposes - Part 4: Nickel alloy steels with specified low temperature properties.
EN 10028-5	Flat products made of steels for pressure purposes - Part 5: Weldable fine grain steels, thermomechanically rolled.
EN 10028-6	Flat products made of steels for pressure purposes - Part 6: Weldable fine grain steels, quenched and tempered.

EN 10028-7	Flat products made of steels for pressure purposes - Part 7: Stainless steels
EN 10088-1	Stainless steels - Part 1: List of stainless steels.
EN 10088-2	Stainless steels - Part 2: Technical delivery conditions for sheet/plate and strip of corrosion resisting steels for general purposes.
EN 10088-3	Stainless steels - Part 3: Technical delivery conditions for semi-finished products, bars, rods, wire, sections and bright products of corrosion resisting steels for general purposes.
EN 10204:2004	Metallic products - Types of inspection documents.
EN 10241	Steel threaded pipe fittings.
EN 10242	Threaded pipe fittings in malleable cast iron.
EN 12285-2:2005	Workshop fabricated steel tanks – Part 2: Horizontal cylindrical single and double skin tanks for the aboveground storage of flammable and non-flammable water polluting liquids.
EN-ISO 1461	Hot dip galvanized coatings on fabricated iron and steel articles - Specifications and test methods.
EN-ISO 3452-1	Non-destructive testing - Penetrant testing - Part 1: General principles.
EN-ISO 5817	Welding - Fusion-welded joints in steel, nickel, titanium and their alloys (beam welding excluded) - Quality levels for imperfections.
EN-ISO 6520-1	Welding and allied processes - Classification of geometric imperfections in metallic materials - Part 1: Fusion welding.
EN-ISO 9001	Quality management systems - Requirements.
EN-ISO 9606-1	Qualification testing of welders - Fusion welding - Part 1: Steels.
EN-ISO 10675-1	Non-destructive testing of welds - Acceptance levels for radiographic testing - Part 1: Steel, nickel, titanium and their alloys.
EN-ISO 12944-1	Paints and varnishes - Corrosion protection of steel structures by protective paint systems - Part 1: General introduction.
EN-ISO 12944-2	Paints and varnishes - Corrosion protection of steel structures by protective paint systems - Part 2: Classification of environments.
EN-ISO 12944-3	Paints and varnishes - Corrosion protection of steel structures by protective paint systems - Part 3: Design considerations.
EN-ISO 12944-4	Paints and varnishes - Corrosion protection of steel structures by protective paint systems - Part 4: Types of surface and surface preparation.
EN-ISO 12944-5	Paints and varnishes - Corrosion protection of steel structures by protective paint systems - Part 5: Protective paint systems.
EN-ISO 14732	Welding personnel - Qualification testing of welding operators and weld setters for mechanized and automatic welding of metallic materials.
EN-ISO 15607	Specification and qualification of welding procedures for metallic materials - General rules.
EN-ISO 15609-1	Specification and qualification of welding procedures for metallic materials - Welding procedure specification - Part 1: Arc welding.
EN-ISO 15609-2	Specification and qualification of welding procedures for metallic materials - Welding procedure specification - Part 2: Gas welding.
EN-ISO 15609-3	Specification and qualification of welding procedures for metallic materials - Welding procedures specification - Part 3: Electron beam welding.
EN-ISO 15609-4	Specification and qualification of welding procedures for metallic materials - Welding procedure specification - Part 4: Laser beam welding.
EN-ISO 15614-1	Specification and qualification of welding procedures for metallic materials - Welding procedure test - Part 1: Arc and gas welding of steels and arc welding of nickel and nickel alloys.
EN-ISO 17636-1	Non-destructive testing of welds - Radiographic testing - Part 1: X- and gamma-ray techniques with film.
EN-ISO 17638	Non-destructive testing of welds - Magnetic particle testing.
EN-ISO 23278	Non-destructive testing of welds - Magnetic particle testing - Acceptance levels.
EN-ISO/IEC 17020	Conformity assessment - Requirements for the operation of various types of bodies performing inspection.

EN-ISO/IEC 17021-1	Conformity assessment - Requirements for bodies providing audit and certification of management systems - Part 1: Requirements.
EN-ISO/IEC 17024	Conformity assessment - General requirements for bodies operating certification of persons.
EN-ISO/IEC 17025	General requirements for the competence of testing and calibration laboratories
EN-ISO/IEC 17065	Conformity assessment - Requirements for bodies certifying products, processes and services.

If no date of issue is mentioned, the current version of the document applies.

I Model product certificate

Certificate

Product certificate

K-XXXXXXX-X

kiwa

Valid from ??-??-20?? Replaces

Page 1 of 2

Container tanks

STATEMENT BY KIWA

With this product certificate, issued in accordance with the Kiwa Regulations for Certification, Kiwa declares that legitimate confidence exists that the products supplied by

<Name supplier>

as specified in this product certificate and marked with the Kiwa®-mark in the manner as indicated in this product certificate may, on delivery, be relied upon to comply with Kiwa evaluation guideline BRL-K21013/02 “Containertanks” dated ??-??-202??.

Wim van Loon
Managing Director Nederland

Publication of this certificate is allowed.
Advice: consult www.kiwa.com in order to ensure that this certificate is stil valid.

PRODUCTS RvA C 002

Kiwa Nederland B.V.
Sir Winston Churchilllaan 273
Postbus 70
2280 AB RIJSWIJK
Tel. 088 988 44 00
NL.Kiwa.Info@kiwa.com
www.kiwa.com

Certificate holder
<name>
<address>
<postal code> <TOWN>
Tel.
e-mail
www.

Production location
<name>
<address>
<postal code> <TOWN>
Tel.
e-mail
www.

Product certificate
K-XXXXXXX-X

Container tanks

TECHNICAL SPECIFICATION
The products (container tanks) are intended for use for stationary and atmospheric storage and dispensing of liquids.

Application and use
Container tanks are intended for use for stationary and atmospheric storage and dispensing of liquids. The liquids stored are liquid fuels and/or mineral oil products having a flash point greater than or equal to 55°C.

Marking
The Kiwa®-mark products are marked with the word mark “KIWA”.
Place of the merk: on an identificationplate on the outside of the second containment/container at a location that is clearly visible.

Mandatory indications:
- supplier’s name or trade mark;
- year of construction (will not apply if the tank number indicates this);
- tank number;
- nominal volume in m^3 or litres;
- the design pressure (atmosferic) of the tank;
- the maximum relative density of the liquid that can be stored in the tank;
- tank type (single- or double-walled);
- tank materiaal (carbon steel or stainless steel);
- empty weight;
- the Kiwa-mark;
- the corrosion category of the paint system used.

RECOMMENDATIONS FOR THE CUSTOMER
Check at the time of delivery whether:
- the supplier has delivered in accordance with the agreement;
- the mark and the marking method are correct;
- the products show no visible defects as a result of transport etc.

If you should reject a product on the basis of the above, please contact:
- <Name supllier>

and if necessary,
- Kiwa Nederland B.V.

Consult the supplier’s processing guidelines for the proper storage and transport methods.

II Model declaration of conformity

Declaration of conformity

BRL-K21013/02

Container tanks

Purchaser
Purchaser
Lane 1
1122 AA CONTRACTED

Supplier/Manufacturer
Tank Supplier B.V.
Street 1
1234 AB ERGENS
Tel: 0123-112200
Email: info@tankleverancier.nl

Registration number
Kiwa registration no.

Registration date
??-??-20??

Tank number:
Tank no.

Tank data

Year of manufacture (yyyy)	
Nominal volume (litres)	
Design pressure (kPa)	*Atmosferic*
Empty weight (kg)	
Maximum relative density (kg/l)	
Length (mm)	
Width (mm)	
Height (mm)	
Wall	*Single-walled/Double-walled*
Material	*Steel/Stainless steel*
External coating*	*Min. C3*
Internal coating	*(option)*

* complies as a minimum with the environmental condition C3 in accordance with EN-ISO 12944-2

Statement by Kiwa

Based on pre-certification tests as well as periodic inspections carried out by Kiwa, the tank referred to in this tank declaration of conformity can be considered to be in compliance with the Kiwa evaluation guideline BRL-K21013/02.

Statement by supplier/manufacturer

The supplier/producer declares that the fabrication and testing of this tank is accordance with the Kiwa evaluation guideline BRL-K21013/02.

General

Besides this declaration of conformity tank an installation certificate must be issued to prove that the tank installation is in accordance with local laws and regulations (NL).

Recommendations for the customer

Check on receipt of the declaration of conformity tank whether:
- The serial number of the container tank is in accordance with this declaration of conformity tank.
- The container tank has no visible damage incurred due to transport.

kiwa CERTIFIED BRL K21013

Kiwa Nederland B.V.
Sir Winston Churchill-laan 273
Postbus 70, 2280 AB Rijswijk
Telefoon 088 998 44 00
Internet www.kiwa.nl

If you should reject this product on the basis of the above then please contact:
1. The supplier of the container tank.
2. Kiwa Nederland B.V.

Copies of this declaration of conformity tank are for: customer, supplier, Kiwa. local authorities (NL)

Validation date: *??-??-20??* Registration number: *Kiwa registration no.*

III Container tank construction

Principle of a container tank

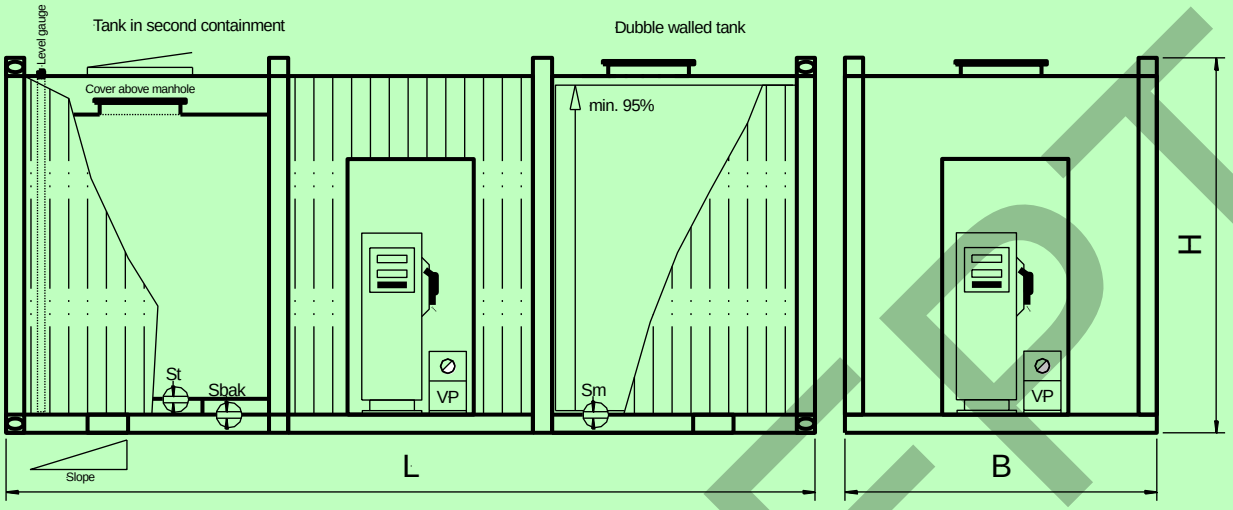

Figure annex 3.1: Example of container tanks

L	=	Container tank length
B	=	Container tank width
H	=	Container tank height
S_t	=	Nominal wall thickness of the tank, minimum 3 mm
S_{bak}	=	Nominal wall thickness of the second containment, minimum 3 mm
S_m	=	Nominal wall thickness of the outer wall, minimum 3 mm

IV Model IQC scheme (example)

IV.1 IQC scheme

The supplier/tank manufacturer shall have an internal quality assurance scheme (IQC scheme) implemented in his factory. This IQC scheme is an overview of the internal and quality controls that the supplier/tank manufacturer performs during production. The IQC scheme contains a schematic overview of all controls that relate to the production of container tanks.

The IQC scheme consists of the following components:

- Which inspections are carried out by the supplier/tank manufacturer.
- What is specifically inspected.
- Which test method is used.
- What is the inspection frequency.
- The method of registration regarding the inspection performed and the results obtained.

Example

B **Inspection during production**

Nr.	Description	Inspection aspects	Inspection method	Instruction no.	Inspection frequency	Inspection registration
1	Cutting of plates	Instruction/Drawing				
1.1		*Dimensions*	*(Inspectie equipment)*	*(Procedure ....)*	*(Each plate)*	*(Production form ...).*
1.2		*Bottom circumference*	*(Inspectie equipment)*	*(Procedure ....)*	*(Each plate)*	*(Production form ...).*
	.....					
2	Rolling of plates	Instruction/Drawing				
2.1		*Dimensions after rolling*	*(Inspectie equipment)*	*(Procedure ....)*	*(Each plate)*	*(Production form ...).*
2.2		*Dimensions after rolling*	*(Inspectie equipment)*	*(Procedure ....)*	*(Each plate)*	*(Production form ...).*
	.....					
3						
3.1						
3.1						
	.....					
4						
4.1						
4.1						
	.....					

The final IQC scheme is a proprietary scheme. After all, each company has its own working practises and methods. It is therefore important that the IQC scheme corresponds with the working practices and methods within the company, but at the same time is in conformance with the requirements of BRL-K21013.

IV.2 Checklist

A checklist contains a registration of all relevant production steps, checks and inspections. The checklist is traceable to the container tank to be produced and is kept up to date during production by the employees of the tank supplier/tank manufacturer. The checklist also gives the production stage of the tank. The term production card can also be used instead of checklist.

Example of a checklist

Supplier/tank manufacturer

Order number:

Production number:		Client:		Drawing no.:	
Tank volume (litres):		Tank type:		Material tank:	
Tot. length tank (mm):		Length shell (mm):		Diameter tank (mm):	
Wall thickness tank:		Wall thickness double-wall:			
Manhole dimensions:					
No. of lifting lugs:		Size of lifting lug hole:			
Connections:	Filling line Vent Suction Fluid level indicator Extra connections				DN 80 DN

Check internal quality department

☐ Internal ☐ Kiwa	Status: Date:	Employee(s):	

Description		Akkoord			*Signature*	Name of employee	Remarks
		Y	N	N/A			
1.0	Cutting of plate	☐	☐	☐			Charge:
2.0	Bending of plate material	☐	☐	☐			
3.0	Etc.	☐	☐	☐			
		☐	☐	☐			

IV.3 Quality system

The supplier/tank manufacturer can also set up a documented quality system. If an organization has a quality system based on EN-ISO 9001, then where possible, reference can be made to procedures or instructions that form part of this quality system.
Kiwa can provide the supplier/tank manufacturer with an example of a quality system