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GREASE SEPARATORS - PART 1: PRINCIPLES OF DESIGN, PERFORMANCE AND TESTING, MARKING AND QUALITY CONTROL

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EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

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May 2006
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Grease separators - Part 1: Principles of design, performance and testing, marking and quality control

Séparateurs à graisses - Partie 1 : Principes pour la conception, les performances et les essais, le marquage et la maîtrise de la qualité

Abscheideranlagen für Fette - Teil 1: Bau-, Funktions- und Prüfgrundsätze, Kennzeichnung und Güteüberwachung

This corrigendum becomes effective on 17 May 2006 for incorporation in the official English and French versions of the EN.

Ce corrigendum prendra effet le 17 mai 2006 pour incorporation dans les versions officielles anglaise et française de la EN.

Die Berichtigung tritt am 17.Mai 2006 zur Einarbeitung in die offizielle Englische und Französische Fassung der EN in Kraft.

EUROPEAN COMMITTEE FOR STANDARDIZATION
COMITÉ EUROPÉEN DE NORMALISATION
EUROPÄISCHES KOMITEE FÜR NORMUNG

Management Centre: rue de Stassart, 36 B-1050 Brussels

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English version

In Clause A.3.8, replace equation (A.2) by the following:

$$G = \frac{(A_{\mathrm{m}} - b) f \cdot V \cdot w}{a(m_1 - m_2)} \qquad \text{(A.2)}$$

Version française

Dans le paragraphe A.3.8, remplacer l'équation (A.2) par la suivante:

$$G = \frac{(A_{\mathrm{m}} - b) f \cdot V \cdot w}{a(m_1 - m_2)} \qquad \text{(A.2)}$$

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This European Standard was approved by CEN on 1 July 2004.

CEN members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration. Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the Central Secretariat or to any CEN member.

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EUROPÄISCHES KOMITEE FÜR NORMUNG

Management Centre: rue de Stassart, 36 B-1050 Brussels

Ref. No. EN 1825-1:2004: E

Contents

Foreword

This document (EN 1825-1:2004) has been prepared by Technical Committee CEN/TC 165 “Waste water engineering”, the secretariat of which is held by DIN.

This European Standard shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by March 2005, and conflicting national standards shall be withdrawn at the latest by March 2005.

This is the first part of the two part standard for grease separators. Part 2 gives guidelines for selection, installation, operation and maintenance of grease separators.

This document has been prepared under a mandate given to CEN by the European Commission and the European Free Trade Association, and supports essential requirements of EU Directive(s).

For the relationship with EU Directive(s), see informative Annex ZA, which is an integral part of this document.

According to the CEN/CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: Austria, Belgium, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Slovakia, Slovenia, Spain, Sweden, Switzerland and United Kingdom.

1 Scope

This standard specifies definitions, nominal sizes, principles of design, performance requirements, marking, testing and quality control for grease separators.

This standard applies to separators for the separation of greases and oils of vegetable and animal origin from wastewater by means of gravity and without any external energy.

This standard does not cover grease separators intended to treat domestic wastewater from kitchen areas of single family dwellings, where the separator has a nominal size less than 1.

The standard is not applicable for the separation of light liquids, e.g. petrol, fuel and heating oil, and does not cover the treatment of wastewater exclusively containing stable emulsions of greases and oils.

The standard does not cover the use of biological means (bacteria and enzymes).

2 Normative references

The following referenced documents are indispensable for the application of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

EN 124:1994, *Gully tops and manhole tops for vehicular and pedestrian areas – Design requirements, type testing, marking, quality control.*

EN 206-1, *Concrete – Part 1: Specification, performance, production and conformity.*

EN 288-2, *Specification and approval of welding procedures for metallic materials – Part 2: Welding procedure specification for arc welding.*

EN 295-3, *Vitrified clay pipes and fittings and pipe joints for drains and sewers – Part 3: Test methods.*

EN 476, *General requirements for components used in discharge pipes, drains and sewers for gravity systems.*

EN 681-1, *Elastomeric seals – Material requirements for pipe joint seals used in water and drainage applications – Part 1: Vulcanised rubber.*

EN 976-1:1997*, Underground tanks of glass-reinforced plastics (GRP) – Horizontal cylindrical tanks for the non-pressure storage of liquid petroleum based fuels – Part 1: Requirements and test methods for single wall tanks.*

EN 978, *Underground tanks of glass-reinforced plastics (GRP) – Determination of factor α and factor β.*

EN 1253-4*, Gullies for buildings – Part 4: Access covers.*

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 for general purposes.*

EN 10088-3, *Stainless steels – Part 3: Technical delivery conditions for semi-finished products, bars, rods and sections for general purposes.*

EN 12350-1, *Testing fresh concrete - Part 1: Sampling.*

EN 12390-2, *Testing hardened concrete - Part 2: Making and curing specimens for strength tests.*

EN 13501-1, *Fire classification of construction products and building elements – Part 1: Classification using data from reaction to fire tests.*

EN ISO 178, *Plastics – Determination of flexural properties (ISO 178:2001)*

EN ISO 180, *Plastic – Determination of Izod impact strength (ISO 180:2000).*

EN ISO 291, *Plastics - Standard atmospheres for conditioning and testing.*

EN ISO 527-2, *Plastics – Determination of tensile properties – Part 2: Test conditions for moulding and extrusion plastics (ISO 527-2:1993 including Corr 1:1994).*

EN ISO 527-4, *Plastics - Determination of tensile properties - Part 4: Test conditions for isotropic and orthotopic fibre-reinforced plastic composites (ISO 527-4:1997).*

EN ISO 1172, *Textile–glass–reinforced plastics – Prepregs, moulding compounds and laminates – Determination of the textile – glass and mineral – filler content – Calcination methods (ISO 1172:1996).*

EN ISO 1514, *Paints and varnishes – Standard panels for testing (ISO 1514:1993).*

EN ISO 1518, *Paints and varnishes – Scratch test (ISO 1518:1992).*

EN ISO 2409, *Paints and varnishes – Cross-cut test (ISO 2409:1992).*

EN ISO 2808, *Paints and varnishes – Determination of film thickness (ISO 2808:1997).*

EN ISO 2812-1, *Paints and varnishes – Determination of resistance to liquids – Part 1: General methods (ISO 2812-1:1993).*

EN ISO 2815, *Paints and varnishes – Buchholz indentation test (ISO 2815:2003).*

EN ISO 4624, *Paints and varnishes – Pull-off test for adhesion (ISO 4624:2002).*

EN ISO 4628-2, *Paints and varnishes - Evaluation of degradation of coatings - Designation of quantity and size of defects, and of intensity of uniform changes in appearance - Part 2: Assessment of degree of blistering (ISO 4628-2:2003).*

EN ISO 4628-3, *Paints and varnishes - Evaluation of degradation of coatings - Designation of quantity and size of defects, and of intensity of uniform changes in appearance - Part 3: Assessment of degree of rusting (ISO 4628-3:2003).*

EN ISO 7253, *Paints and varnishes - Determination of resistance to neutral salt spray (fog) (ISO 7253:1996)*

EN ISO 8501-1, *Preparation of steel substrates before application of paints and related products – Visual assessment of surface cleanliness – Part 1: Rust grades and preparation grades of uncoated steel substrates and of steel substrates after overall removal of previous coatings (ISO 8501-1:1988).*

EN ISO 9377-2, *Water quality – Determination of hydrocarbon oil index – Part 2: Method using solvent extraction and gas chromatography (ISO 9377-2:2000).*

EN ISO 14125, *Fibre-reinforced plastic composites - Determination of flexural properties (ISO 14125:1998).*

EN ISO 15607, *Specification and qualification of welding procedures for metallic materials - General rules (ISO 15607:2003)*

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 (ISO 15614-1:2004).

ENV 10080, *Steel for reinforcement of concrete weldable ribbed reinforcing steel B 500 – Technical delivery conditions for bars, coils and welded fabric.*

ISO 48, *Rubber vulcanized or thermoplastic – Determination of hardness (hardness between 10 IRHD and 100 IRHD).*

ISO 185, *Grey cast iron – Classification.*

ISO 630, *Structural steels – Plates, wide flats, bars, sections and profiles.*

ISO 877, *Plastics – Methods of exposure to direct weathering, to weathering using glass-filtered daylight, and to intensified weathering by daylight using Fresnel mirrors.*

ISO 1083, *Spheroidal graphite cast irons – Classification.*

ISO 1133, *Plastics – Determination of the melt mass-flow rate (MFR) and the melt volume-flow rate (MVR) of thermoplastics.*

ISO 1183-1:2004 *Plastics -- Methods for determining the density of non-cellular plastics -- Part 1: Immersion method, liquid pyknometer method and titration method*

ISO 1183-2:2004 *Plastics -- Methods for determining the density of non-cellular plastics -- Part 2: Density gradient column method (available in English only)*

ISO 1521, *Paints and varnishes – Determination of resistance to water – Water immersion method.*

ISO 1817*, Rubber vulcanized – Determination of the effect of liquids.*

ISO 1920, *Concrete tests – Dimensions tolerances and applicability of test specimens.*

ISO 3755, *Cast carbon steels for general engineering purposes.*

ISO 4012, *Concrete – Determination of compressive strength of test specimens.*

ISO 6272, *Paints and varnishes – Falling-weight test.*

ISO 8217, *Petroleum products – Fuels (class F) – Specifications of marine fuels.*

3 Terms and definitions

For the purposes of this document, the following terms and definitions apply. See also Figures 1 and 2.

3.1
grease
substances of vegetable and/or animal origin, of a density less than 0,95 g/cm^3, which are partially or totally insoluble in water and saponifiable

3.2
influent
wastewater, containing grease, with the exception of wastewater containing faeces (sanitary wastewater) which enters the grease separator

3.3
grease separator
a unit or assembly of units to separate grease from wastewater and retain the separated grease within the unit, normally comprising a sludge trap, a grease separation chamber and, if necessary, a sampling point

3.4
grease separation chamber
part of a grease separator for the separation of grease from influent, in such a way that, due to the difference in density between the substance to be separated and the carrying liquid, and the reduction in flow velocity, the grease particles are separated from the wastewater by flotation

3.5
grease separation zone
part of the grease separation chamber, in which the grease is separated, comprising the effective filled volume and the grease collection chamber

3.6
grease collection area
top part of the grease separation chamber, where the separated grease is retained

3.7
sludge trap
part of the grease separator where material settles, i.e. sludge, silt and grit, and which can be a separate unit or constructed with the grease separation chamber as a combined unit

3.8
extension shaft
component used to extend an opening in the separator system to finished level thereby permitting access for inspection and maintenance purposes

3.9
sampling point
part of the grease separator situated downstream of the separation process where samples can be taken of the wastewater discharged from the separator

3.10
nominal size (NS)
number, without units, approximately equivalent to the maximum effluent flow rate in litres per second from the separator when tested in accordance with 8.5.1

3.11
maximum operational liquid level
highest level of liquid and grease at the flow, corresponding to the nominal size, with the grease collection area filled

3.12
automatic warning device
device to warn of excessive depth of grease or wastewater or low level condition

3.13
coating/lining
a protective layer on a separator component

4 Nominal sizes

The preferred nominal sizes of grease separators are: 1, 2, 4, 7, 10, 15, 20 and 25.

Other nominal sizes are permissible.

5 Requirements

5.1 General

Grease separators and their separate components shall be in accordance with material requirements specified in 5.2.

5.2 Materials

5.2.1 General

Grease separators may be constructed from:

— unreinforced concrete, fibre-reinforced concrete, reinforced concrete;

— metallic materials: cast iron, stainless steel, steel;

— plastics materials: glass fibre reinforced plastics, polyethylene;

— vitrified clay.

Any other materials used in the construction of a grease separator shall meet all the relevant requirements of this standard.

5.2.2 Concrete

The concrete shall comply with the minimum compressive strength class C 35/45 in accordance with EN 206-1.

5.2.3 Metallic materials

a) The production, quality and testing of the metallic materials listed below shall be in accordance with the following standards:

Flake graphite cast iron	ISO 185	Reinforcing steel	ENV 10080
Spheroidial graphite cast irons	ISO 1083	Stainless steel	EN 10088-1
			EN 10088-2
			EN 10088-3
Cast steel	ISO 3755		
Rolled steel	ISO 630		

b) Additional requirements for metallic materials

Stainless steel

For good general corrosion resistance and stability against intercrystalline corrosion effects of the various steels listed in the EN 10088-1, EN 10088-2 and EN 10088-3, only austenitic steels of minimum quality X6 CrNi 1810 shall be used.

Welding of steel

The requirements given in EN ISO 15607, EN 288-2 and EN ISO 15614-1 shall apply.

5.2.4 Plastics materials

a) Glass fibre reinforced plastics

The laminate shall be constructed using resins, reinforcement materials, processing agents and other materials in accordance with EN 976-1:1997, clause 3.

b) Polyethylene

1) The requirements for moulding and fabricating polyethylene are as follows:

Polyethylene for rotational moulding:

— The density shall not be less than 935 kg/m^3 when measured in accordance with ISO 1183.

— The melt mass-flow rate under a nominal load of 21,6 N and a temperature of 190 °C, shall be between 1,0 g/10 min and 5,0 g/10 min measured in accordance with ISO 1133.

Polyethylene for blow moulding:

— The density shall not be less than 945 kg/m^3 when measured in accordance with ISO 1183.

— The melt mass-flow rate under a nominal load of 50 N and a temperature of 190 °C, shall be between 0,3 g/10 min and 1,0 g/10 min measured in accordance with ISO 1133.

Polyethylene for injection moulding:

— The density shall not be less than 945 kg/m^3 when measured in accordance with ISO 1183.

— The melt mass-flow rate under a nominal load of 50 N and a temperature of 190 °C, shall be between 0,3 g/10min and 1,0 g/10 min, measured in accordance with ISO 1133.

Polyethylene for buttweld-sheet assembly:

— The density shall not be less than 950 kg/m^3 when measured in accordance with ISO 1183.

— The melt mass-flow rate under a nominal load of 50 N and a temperature of 190 °C, shall be between 0,3 g/10 min and 1,0 g/10 min, measured in accordance with ISO 1133.

2) Additional requirements

Tensile strength:

The tensile properties, when determined in accordance with EN ISO 527-2 (using a testing speed of 100 mm/min) shall be as follows:

Polyethylene for rotational moulding:

— Tensile stress at yield shall be greater than 15 MPa.

— Tensile strain at yield shall be less than 25 %.

— Tensile strain at break shall be greater than 200 %.

Polyethylene for blow moulding, injection moulding and buttweld-sheet assembly:

— Tensile stress at yield shall be greater than 21 MPa.

— Tensile strain at yield shall be less than 25 %.

— Tensile strain at break shall be greater than 200 %.

U.V. stability:

— When exposed to U.V. radiation of 3,5 GJ/(m^2 · a) in accordance with ISO 877, the mechanical properties shall not decrease more than 50 %.

5.2.5 Vitrified clay

Suitable clays shall be used, fired to vitrification and of a such a quality and homogeneity that the final product is in accordance with this standard. Finished products shall be sound and free from such defects as would impair their function when in service. Visual defects, such as missing glaze, unevenness and slight surface damage are acceptable, providing that the impermeability and durability of the products are not affected. Products may be glazed or unglazed on the interior and/or exterior. When glazed they shall also be glazed on the jointing surfaces of the pipe connections. Products may be surface treated after firing.

Products may be completed by fixing parts together. Fabricated test specimens shall not fracture through the adhesive nor at the adhesive/clay interface under a bending tensile stress of 5 N/mm^2 after full curing when made and tested in accordance with EN 295-3.

5.2.6 Sealing materials

For grease separators, only elastomers (rubber) or permanent elastic sealing materials shall be used. Cement mortar and similar sealing cements or compounds shall not be used.

Rubber seals shall comply with the requirements of EN 681-1, type WC, and their hardness for joints shall not be less than 40 IRHD in accordance with ISO 48.

5.2.7 Coatings/linings

5.2.7.1 General

If there are coatings/linings applied to the surfaces of the grease separators for protection against the effects of the influent (for internal surfaces), and ground conditions (for external surfaces), they shall be in accordance with the following requirements.

5.2.7.2 Technical documentation

The supplier of the coating materials shall provide full technical documentation to ensure that:

a) the complete and correct identification and application of the material supplied, and

b) the possibility and limitations of a repair to the coating

are determined.

5.2.7.3 Preparation, application and curing

5.2.7.3.1 Surface preparation

Rolled steel surfaces shall be grit blasted to achieve a degree of cleanliness of at least Sa 2,5 and the roughness profile, Ra, shall be between 10 μm and 20 μm in accordance with EN ISO 8501-1.

Concrete surfaces shall be rough, clean and free from cement skin prior to coating. This can be achieved by grit blasting with non-metallic abrasives, flame blasting or by using pressurized water devices.

5.2.7.3.2 Application and curing

The application and curing shall be carried out in accordance with the supplier's written instructions.

5.2.7.4 Properties

a) Dry film thickness – to be stated by the manufacturer of the separator system.

NOTE A minimum thickness can be required by national procedures and/or regulations.

b) Adhesion – at least 6 N/mm^2 on steel and at least 2 N/mm^2 on concrete in accordance with EN ISO 4624.

c) Impact resistance – at least 4 Nm in accordance with ISO 6272.

d) Scratch resistance – at least 50 N in accordance with EN ISO 1518.

e) Porosity – the coating shall have no pores when tested in accordance with 8.1.4.2.5.

5.2.8 Chemical resistance

5.2.8.1 Internal surfaces

5.2.8.1.1 General

All materials referred to in 5.2 shall be resistant to animal and vegetable grease and decomposing products, to reactive salts, high temperature, detergents and their decomposing products or protected accordingly. When tested in accordance with 8.2 the following requirements shall be met.

5.2.8.1.2 Concrete

When uncoated and/or coated concrete is tested in accordance with 8.2.1, it shall comply with the requirements given in 5.2.2.

5.2.8.1.3 Plastics materials

The test specimens from the test in 8.2.1 and 8.2.2 shall retain the following tensile strength, flexural strength, modulus of elasticity and Izod impact resistance, when compared with the control specimen:

— at least 80 % for glass reinforced plastics;

— at least 70 % for polyethylene.

5.2.8.1.4 Sealing materials

When sealing materials others than those in 5.2.6 tested in accordance with 8.2.3, the test pieces shall not show any signs which may affect their fitness for use.

5.2.8.1.5 Coatings

When tested in accordance with 8.2.4 the following requirements shall be met:

— Degree of blistering : no worse than degree 2, class 2 gradation in accordance with EN ISO 4628-2.

— Degree of rusting : Re0 in accordance with EN ISO 4628-3.

— Width of coating detachment : not greater than 1 mm along the surface scratch in accordance with EN ISO 1518.

— Degree of Buchholz : not more than 50 % indentation in accordance with EN ISO 2815.

5.2.8.1.6 Vitrified clay

When tested after immersion in the test solutions (see 8.2.1) as specified in EN 295-3, the requirements in accordance with 5.2.5 shall be met.

5.2.8.2 External surfaces for underground conditions

When external coatings are required for steel or concrete and tested in accordance with 8.3 the following requirements shall be met:

— Degree of blistering : no worse than degree 2, class 2 gradation in accordance with EN ISO 4628-2.

— Degree of rusting : Re0 in accordance with EN ISO 4628-3.

— Width of coating detachment : not greater than 1 mm along the surface scratch in accordance with EN ISO 1518.

For steel separators, the cathodic protection and electrical resistance shall be tested in accordance with provisions valid in the country of use of the product.

5.2.9 Reaction to fire

Where subject to national regulatory requirements, the reaction to fire of grease separators shall be declared in accordance with the provisions of 8.6.

NOTE It is recommended that the National Foreword (or a National Annex) to this standard states whether regulations for reaction to fire of wastewater engineering products exist in that country.

5.3 Design requirements

5.3.1 Dimensions and dimensional tolerances

When not otherwise stated in this standard the dimensions and dimensional tolerances of the grease separators and their components shall be such as to ensure the functioning of the grease separators and their components and fulfil the requirements of this standard.

5.3.2 Watertightness of components

All components of a grease separator (including joints, seals, connections and partitions) shall be watertight and the grease separator including extension shafts shall be tested in accordance with 8.4.1.

5.3.3 Accessibility

All parts of the grease separator shall be accessible for inspection, testing, maintenance, clearance of obstruction and removal of grease and debris. The dimensions of manholes and inspection chambers shall comply with the requirements as given in EN 476.

On separators equal to or greater than NS 4, there shall be at least one access point in accordance with EN 124:1994, 7.3.

5.3.4 Inlets, outlets and connectors

The minimum nominal diameters DN_{min} of inlets and outlets and, where necessary, the connector between the sludge trap and grease separation chamber, are specified in Table 1 and shall be compatible with standardized pipe systems.

Table 1 — Pipe minimum nominal diameters DN_{min}

Nominal size	DN_{min} [a]
Up to and including NS 4	100
Over NS 4 up to and including NS 7	125
Over NS 7 up to and including NS 10	150
Over NS 10 up to and including NS 25	200
[a] The nominal diameter can apply to either the internal or external pipe diameter	

Provisions shall be made for possible movement and settlement when joining inlet, outlet and connection pipes.

5.3.5 Internal components

All parts necessary for the effectiveness of a separator shall be secured.

In order to ensure correct functioning and to avoid clogging in service, all internal components shall have a free passage for a ball of 80 mm diameter.

5.3.6 Sludge traps

Sludge traps shall be constructed with a flow-control baffle behind the inlet, providing reduction in velocity and an even flow pattern.

In the case of separators without partition between the sludge trap and the grease separator chamber, the sludge collection area shall be clearly defined in design and function (e.g. by an inclined bottom).

5.3.7 Access covers

Grease separators shall be fitted with access covers which comply with EN 124:1994 or EN 1253-4. Grease separators inside buildings shall have odour-tight covers.

5.3.8 Height and storage capacity of the grease collection area

The storage capacity of the grease collection area shall be at least $40 \times$ NS in litres. The grease collection area shall be high enough to allow the maximum grease storage capacity to be collected.

5.3.9 Fall

The total fall through the grease separator, grease separation chamber and sludge trap shall be sufficient to ensure that no back-up of the wastewater occurs up stream of the unit and shall be specified in the manufacturer's specification as the difference between the level of the bottom of the inlet and the bottom of the outlet. It shall be at least 70 mm for the grease separator. When there is a partition between the sludge trap and the separation chamber the fall in the sludge trap shall be at least 50 mm, and in the grease separation chamber at least 20 mm.

5.3.10 Ventilation

The grease separator shall be manufactured in such a way that ventilation is possible between the inlet and outlet. The ventilation cross-section shall at least correspond to the area of the inlet pipe.

5.4 Structural stability

5.4.1 General

The grease separators shall be designed to withstand the various loadings to which they are expected to be subjected (dead loads, live loads, soil pressure, water pressure) without detriment to their function and to the environment and be protected against possible floating when empty.

The structural stability shall be based on national standards, transposing European Standards as available, or in the absence of those is based on established national procedures and/or regulations for calculation or testing valid in the place of use of separator.

NOTE Annex C lists the documents which can be used in the framework of this clause and which will remain valid until replaced by European Standards.

5.4.2 Grease separators made of unreinforced concrete, fibre-reinforced concrete, reinforced concrete

The crack width under design load shall not be greater than 0,20 mm for reinforced concrete.

When steel reinforcement is used, the concrete cover to the steel shall not be less than 20 mm on all sides for prefabricated units, and not less than 30 mm on all sides for units built in-situ.

5.4.3 Grease separators made of glass fibre-reinforced plastics

Under the design load the laminate shall not be strained beyond 0,26 % or 1,3 Ed, whichever is smaller, where Ed is the least strain determined from allowable loadings and the resin properties. The strain level shall be determined by calculation. For general and local stability the separator shall withstand the negative pressure tests in accordance with EN 976-1:1997, 5.8.2.2 and 5.8.3, where the separator is installed at a minimum depth of 650 mm and a maximum depth of 2000 mm.

5.5 Functional requirements

5.5.1 General

The grease separator shall be constructed so as to facilitate the flow. In particular, the flow through the separator shall be as uniform as possible.

The wastewater shall be supplied to the grease separation chamber via the sludge trap.

5.5.2 Automatic warning devices and other auxiliary equipment

Automatic warning devices and other auxiliary equipment may be installed.

5.5.3 Determination of the nominal size

The nominal size of grease separators shall be determined as follows:

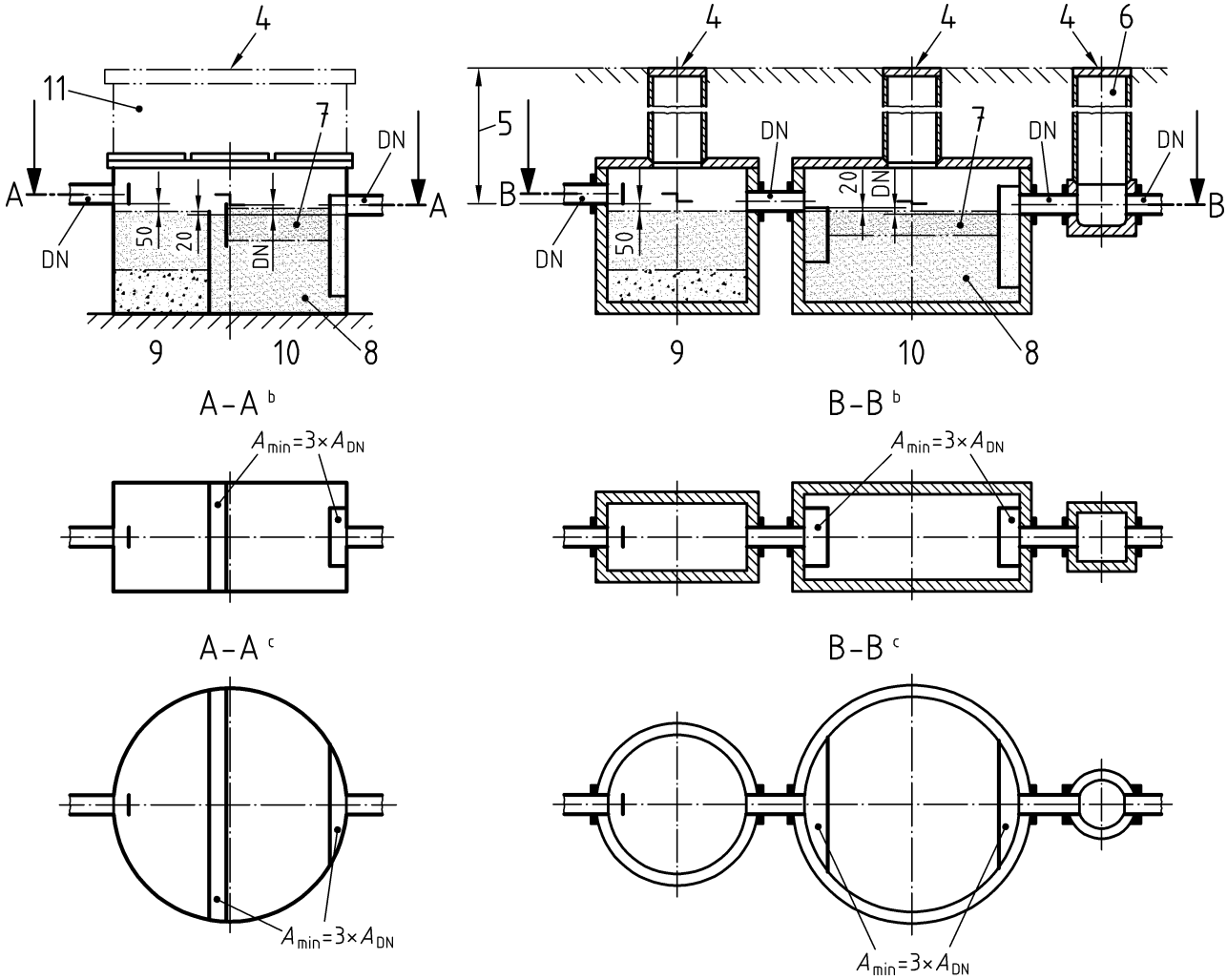
a) by testing in accordance with 8.5.1 and analysis according to Annex A. The concentration of hydrocarbons shall not exceed 25 mg/l or

b) by constructing in accordance with the minimum values given in Table 2 and Figures 1a) and 1b).

Table 2 — Basic dimensions of grease separation chambers of NS ≥ 2

Nominal size NS	Minimum surface of grease separation zone m^2	Minimum volume of grease separation zone m^3	Minimum volume of grease collection area m^3
NS	$0,25 \times NS$	$0,24 \times NS$	$0,04 \times NS$

Dimensions in millimetres

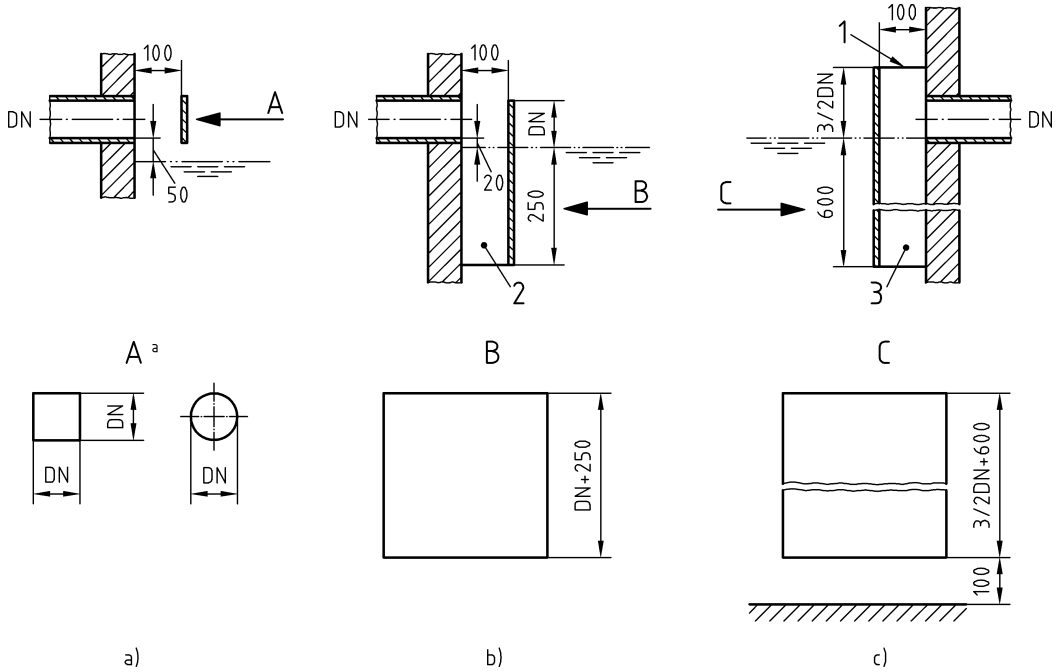


Key

1	Ventilation opening $A_{min} = A_{DN}$	6	Sampling point	9	Sludge trap
2	Inlet area	7	Grease collection chamber	10	Grease separator chamber
3	Outlet area	8	Grease separator zone	11	Adjustment rings
4	Access point				
5	Overall depth				
[a]	(round or rectangular version)	[b]	(rectangular version)	[c]	(round version)

Figure 1a) — Position of scum boards in the separator

Dimensions in mm



Key
a) Inlet of sludge trap
b) Inlet of grease separator chamber
c) Outlet of grease separator chamber

Figure 1b) — Scum boards (in detail)

5.5.4 Volume of the sludge traps

The volume of sludge traps shall be at least 100 × NS in litres measured to the level of the outlet of the sludge trap.

6 Marking

The covers of grease separators shall be marked with "Separator", together with the class of cover in accordance with EN 124:1994. Furthermore, nameplates in a durable material e.g. stainless steel, shall be fixed to the separators in a clearly visible position, if possible on the inside.

If a separator and sludge trap are combined, a nameplate on the entrance to the separator manhole, or, on exposed installations, on the separator itself is acceptable. If a separator and sludge trap are separate units a nameplate for each is required.

The nameplate shall contain the following information as applicable:

— EN 1825;
— nominal size (NS);
— volume of the separator, in l or m^3;
— volume of the sludge trap, in l or m^3;
— storage capacity for grease, in l or m^3;
— depth of maximum grease storage quantity, in mm;
— year of manufacture;
— manufacturer's name or mark;
— mark of certification body, where applicable.

Further marking may be added. Where ZA.3 covers the same information as this clause, the requirements of this clause are met.

7 Manufacturer's product information

The manufacturer shall supply all the appropriate information concerning the use of the grease separator supplied, e.g. handling, transport, temporary storage and instructions for installation, operation and maintenance.

8 Test methods

8.1 Materials

8.1.1 Concrete

Testing shall be carried out in accordance with ISO 4012, ISO 1920, EN 12350-1 and EN 12390-2. The results shall meet the requirements of 5.2.2.

8.1.2 Plastics material

8.1.2.1 Testing

a) Glass reinforced plastics:

Testing shall be carried out in accordance with EN ISO 1172, EN ISO 527-4, , EN ISO 14125, EN ISO 180, EN 976-1 and EN 978. The results shall meet the requirements given in 5.2.4 a) and 5.4.3.

b) Polyethylene:

Testing shall be carried out in accordance with EN ISO 180, EN ISO 527-2, ISO 1133, ISO 1183 and ISO 877. The results shall meet the requirements given in 5.2.4 b).

8.1.2.2 Test specimens

a) Glass reinforced plastics:

The test specimen shall be prepared in accordance with EN ISO 527-4, and EN ISO 14125. Each test specimen shall be fully encapsulated in the surface resin used to produce the separator.

b) Polyethylene:

Polyethylene test specimens prepared from identical material used to produce the separator shall be used. All test specimens shall be cut to the same size and shape as specified in EN ISO 180 and EN ISO 527-2.

8.1.3 Vitrified clay

Testing shall be provided in accordance with EN 295-3.

8.1.4 Coatings

8.1.4.1 Preparation, application and curing

Compliance with the requirements stated in 5.2.7.3 shall be checked by visual inspection.

The grade of cleanliness and the surface profile of steel substrates shall be tested in accordance with EN ISO 8501-1.

8.1.4.2 Properties

8.1.4.2.1 Dry film thickness

The dry film thickness shall be determined in accordance with EN ISO 2808 and the results shall be in accordance with 5.2.7.4 a).

For coatings on steel substrates a non-destructive test shall be applied using a film thickness gauge e.g. magneto-inductive, with an accuracy of at least 10 µm.

For coatings on concrete substrates, a destructive test shall be used, e.g. a dial thickness gauge.

8.1.4.2.2 Adhesion

The adhesion shall be determined by the pull-off test in accordance with EN ISO 4624 and the results shall be in accordance with 5.2.7.4 b).

Where physical constraints prevent the pull-off test being carried out on finished products, this test may be replaced by the cross-cut test in accordance with EN ISO 2409, using glass test pieces. The result shall meet, at least, class I of EN ISO 2409.

8.1.4.2.3 Impact resistance

The impact resistance shall be determined by the falling weight test in accordance with ISO 6272 using a ball with a diameter of 15,9 mm and the results shall be in accordance with 5.2.7.4 c).

8.1.4.2.4 Scratch resistance

The scratch resistance shall be determined in accordance with EN ISO 1518 and the results shall be in accordance with 5.2.7.4 d).

8.1.4.2.5 Porosity

The porosity shall be determined in accordance with the following spark test:

The surface shall be dry for this test. Use spark apparatus with an adjustable voltage. Adjust the spark length to twice the established thickness of the coating and apply 600 V per 100 µm of dry film thickness. Move the electrode slowly over the entire surface of the coating. No spark shall appear in order to meet the requirements in 5.2.7.4 e).

If the coating contains conducting pigments, and has been applied to a steel substrate, the spark test may be replaced by the following resistivity test:

Use test apparatus consisting of a micro-ampere meter connected in series with a potentiometer and a 90 V battery. Connect the ampere meter to a small sponge. To increase the conductivity and penetrating capacity, moisten the sponge with a mixture of the following:

1 part by volume	– 25 % (m/m) ammonia
5 parts by volume	– 96 % (m/m) ethanol
94 parts by volume	– distilled water

Connect the battery, using an elastic wire with a clamp, to the surface of the steel substrate. Move the sponge slowly over the entire surface of the coating. No deflection of the ampere meter needle shall appear in order to meet the requirements in 5.2.7.4 e).

8.1.4.2.6 Test specimen

Hot rolled steel test specimens 200 mm x 100 mm x 4 mm in accordance with EN ISO 1514 and/or concrete test specimens 200 mm x 200 mm x 200 mm having a compressive strength as prescribed in 5.2.2 shall be used to which the coating system is applied.

8.2 Chemical resistance of internal surfaces

8.2.1 General

Chemical resistance shall be checked by immersing three test specimens in the following four test liquids:

— pig fat kept at (70 ± 2) °C;

— coconut oil; kept at (70 ± 2) °C;

— a mixture of detergents kept at (70 ± 2) °C, as follows:

  — 90,00 % (m/m) demineralized water;

  — 0,75 % (m/m) sodium hydroxide;

  — 3,75 % (m/m) sodium orthophosphate;

  — 0,50 % (m/m) sodium silicate;

  — 3,25 % (m/m) sodium carbonate;

  — 1,75 % (m/m) sodium metaphosphate;

— a mixture of acid solutions kept at (40 ± 2) °C as follows:

  — 20 parts (V/V) demineralized water;

  — 1 part (V/V) mixture of acids, consisting of 50 % (m/m) acetic acid and 50 % (m/m) butyric acid.

Each test shall have a duration of 1000 h. After the immersion tests, the test specimens shall be rinsed with water, dried in air at (20 ± 3) °C for 24 h then checked for compliance with the requirements in 5.2.8.1.1 to 5.2.8.1.5.

8.2.2 Plastics materials and linings

Prepare test specimens in accordance with 8.1.2.2.

Three test specimens of each material type shall be used for each of the four immersion tests described in 8.2.1. A fourth test specimen for each test shall be stored in a standard conditioning atmosphere in accordance with EN ISO 291, and shall serve as a control specimen.

After the tests the tensile strength, flexural strength and modulus and Izod impact resistance of every test specimen shall be determined in accordance with EN ISO 527-4,, EN ISO 14125 and EN ISO 180 for glass reinforced plastics, and EN ISO 178, EN ISO 180 and EN ISO 527-2 for polyethylene.

The results shall meet the requirements in 5.2.8.1.3.

8.2.3 Sealing materials

Sealing materials shall be tested in each of the four immersion tests described in 8.2.1 and the effect determined in accordance with ISO 1817. The results shall meet the requirements in 5.2.8.1.4.

8.2.4 Coatings

Prepare test specimens in accordance with 8.1.4.2.6 and determine the dry film thickness, porosity and Buchholz indentation.

Three test specimens of each material type shall be used for each of the four immersion tests described in 8.2.1. A scratch shall be made into the coating, passing through to the steel or concrete surface, in one of the test specimens.

The effect on the coating shall be determined in accordance with EN ISO 2812-1.

The results shall meet the requirements in 5.2.8.1.5.

8.3 Chemical resistance of external coatings

Prepare test specimens in accordance with 8.1.4.2.6 and determine the dry film thickness and porosity.

Three test specimens of each material type shall be used for each test which is to determine the resistance to water in accordance with ISO 1521 (for coatings on steel or concrete substrates), and neutral salt spray in accordance with EN ISO 7253 (for coatings on steel substrates only). A scratch shall be made into the coating, passing through to the steel or concrete surface, in one of the test specimens.

Each test shall have a duration of 1 000 h. After the immersion tests, the test specimens shall be rinsed with water, dried in air at (20 ± 3) °C for 24 h then checked for compliance with the requirements in 5.2.8.2.

8.4 Watertightness of grease separator components

8.4.1 Watertightness

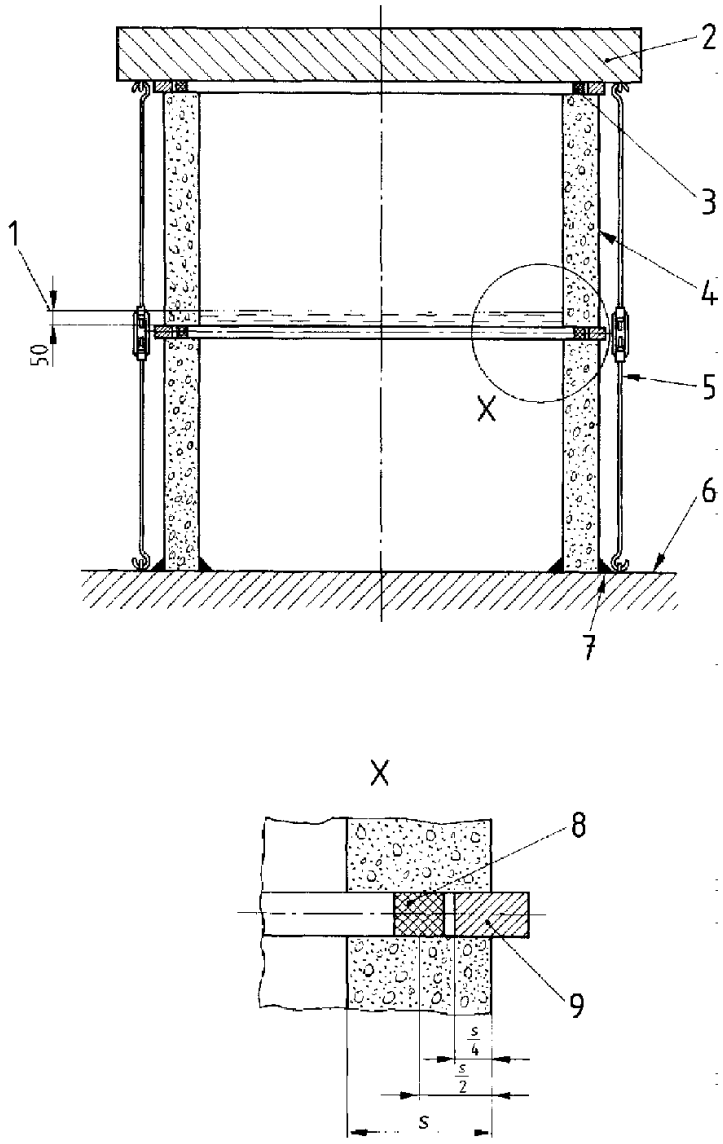
The watertightness of finished grease separator components shall be tested by filling with water up to 100 mm above the maximum operational level for at least 20 min. There shall be no leaks.

In addition, chambers which have assembly joints i.e. those which can be dismantled, and where dissimilar materials are connected, shall be tested as follows:

The test apparatus shall be constructed in accordance with Figure 2 using identical materials, coatings and joint seals as those manufactured for the grease separator. The assembled test apparatus shall be closed, filled with water and subjected to a water pressure of 50 kPa for a minimum period of 2 h. There shall be no leaks.

This test shall also be applied to joints between chambers and shafts and extensions shafts.

Dimensions in millimetres



Key

1 Water level min.
2 Covering
3 Joint sealing
4 Wall equivalent to that of the product manufactured
5 Tensioning device
6 Base
7 Cement, cement mortar or other appropriate compound
8 Joint sealing
9 Spacers uniformly distributed around the circumference

Figure 2 — Example of a test assembly for watertightness in accordance with 8.4

8.4.2 Height and storage capacity of the grease collection area, sludge traps, fall, ventilation, built-in components, inlets, outlets, connectors and accessibility

The compliance with the requirements according to 5.3.3 to 5.3.6 and 5.3.8 to 5.3.10 shall be verified visually or by measurement as appropriate.

8.4.3 Access covers

Check for compliance with the requirements in accordance with 5.3.7 shall be verified visually or by measurement as appropriate.

8.5 Determination of the nominal size

8.5.1 Prefabricated separators

8.5.1.1 General

The nominal size of each type of separator (see clause 4) shall be determined under test conditions.

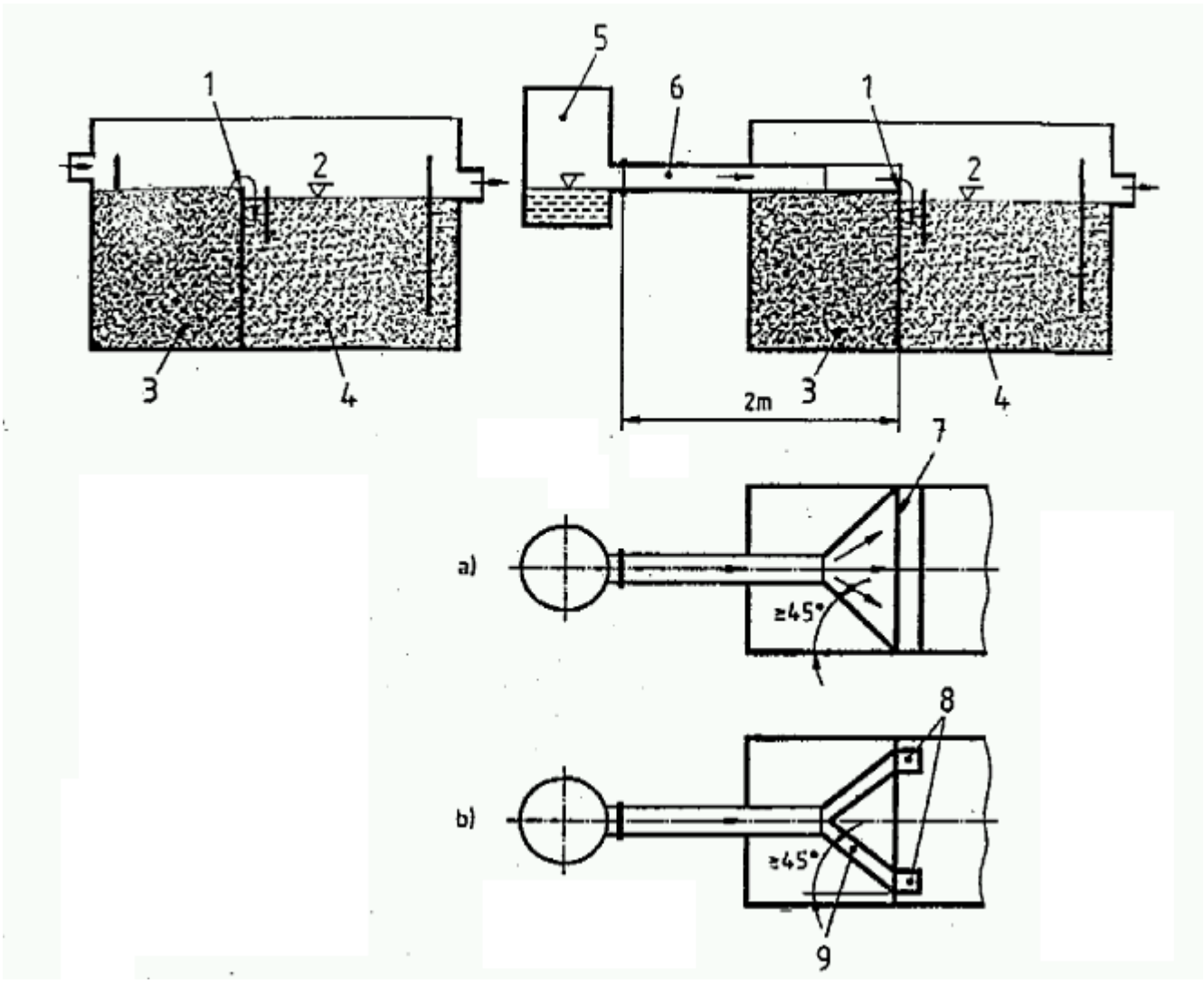
For the test, a model separator made from different materials than the actual product may be used provided that all dimensions, which can influence the hydraulics, fully conform with those of the actual product.

Only the separator shall be tested, therefore, separators with combined sludge traps shall have the sludge trap volume excluded. Where

— the sludge trap is combined and in line with the separator, the volume of the sludge trap shall be excluded by using a supply pipe or pipes across or through the sludge trap as shown in Figure 3a);

— the sludge trap is combined and below the static water level of the separator, the volume of the sludge trap shall be filled with an inert and impermeable material having a smooth surface as shown in Figure 3b).

Normal service conditions Test conditions



Key

a) Supply from sludge trap to separator over a weir
b) Supply from sludge trap to separator by means of e.g. two inlet openings

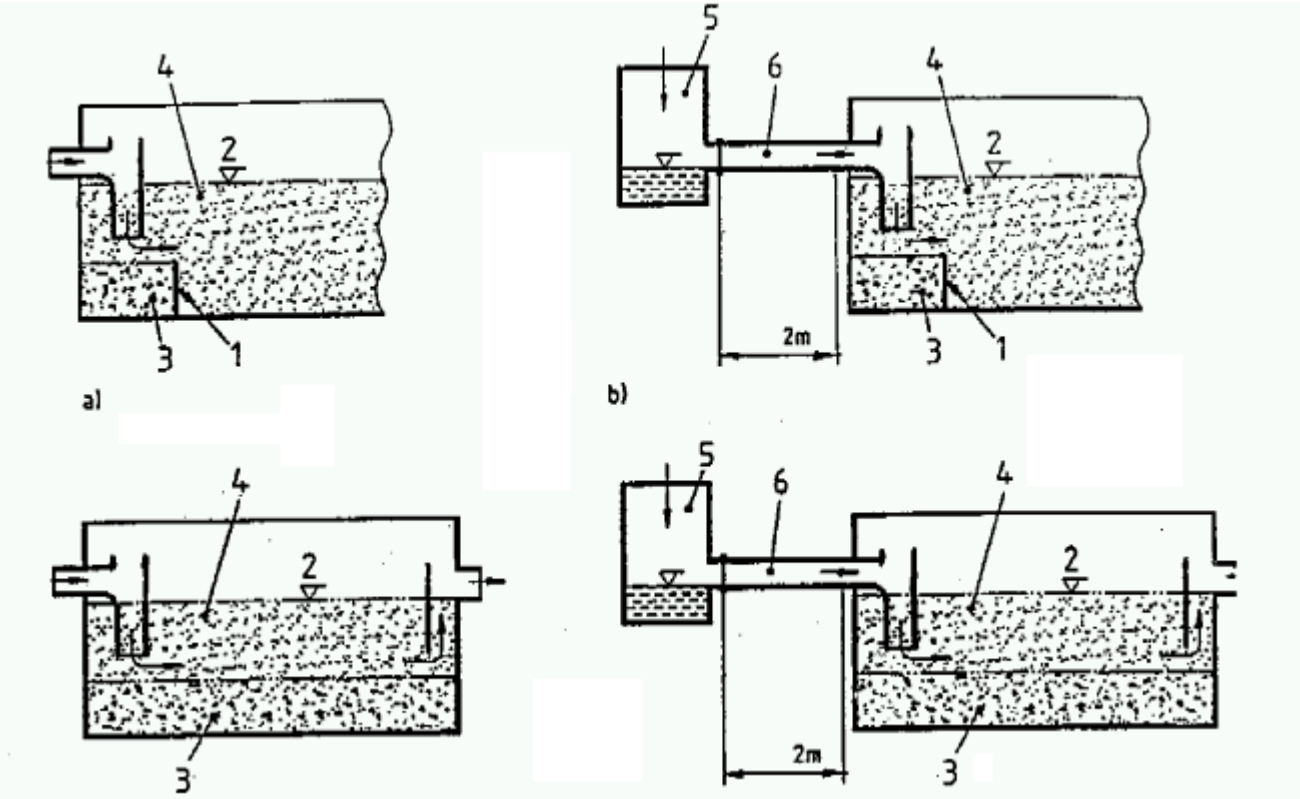
1 Scum board
2 Static water level
3 Sludge trap
4 Separator
5 Collecting chamber (see Figure 4)
6 Supply pipe, inclined at (2 ± 0,5) %
7 Weir
8 Inlet openings
9 Connecting pipe

Figure 3a) — Sludge trap combined and in line with the separator

Where the flow, under normal service conditions, between the sludge trap and separator is over an open weir, the supply pipe shall be adapted to form an angular flume with sides not less than 45° as shown in Figure 3a). The discharge of the flume shall extend the full width of the weir.

Where the flow, under normal service conditions, between the sludge trap and separator is given by more than one pipe/duct, the cross sectional area of the supply pipe shall be equal to the total cross sectional area of the pipes/ducts and constructed as shown in Figure 3b).

Normal service conditions Test conditions

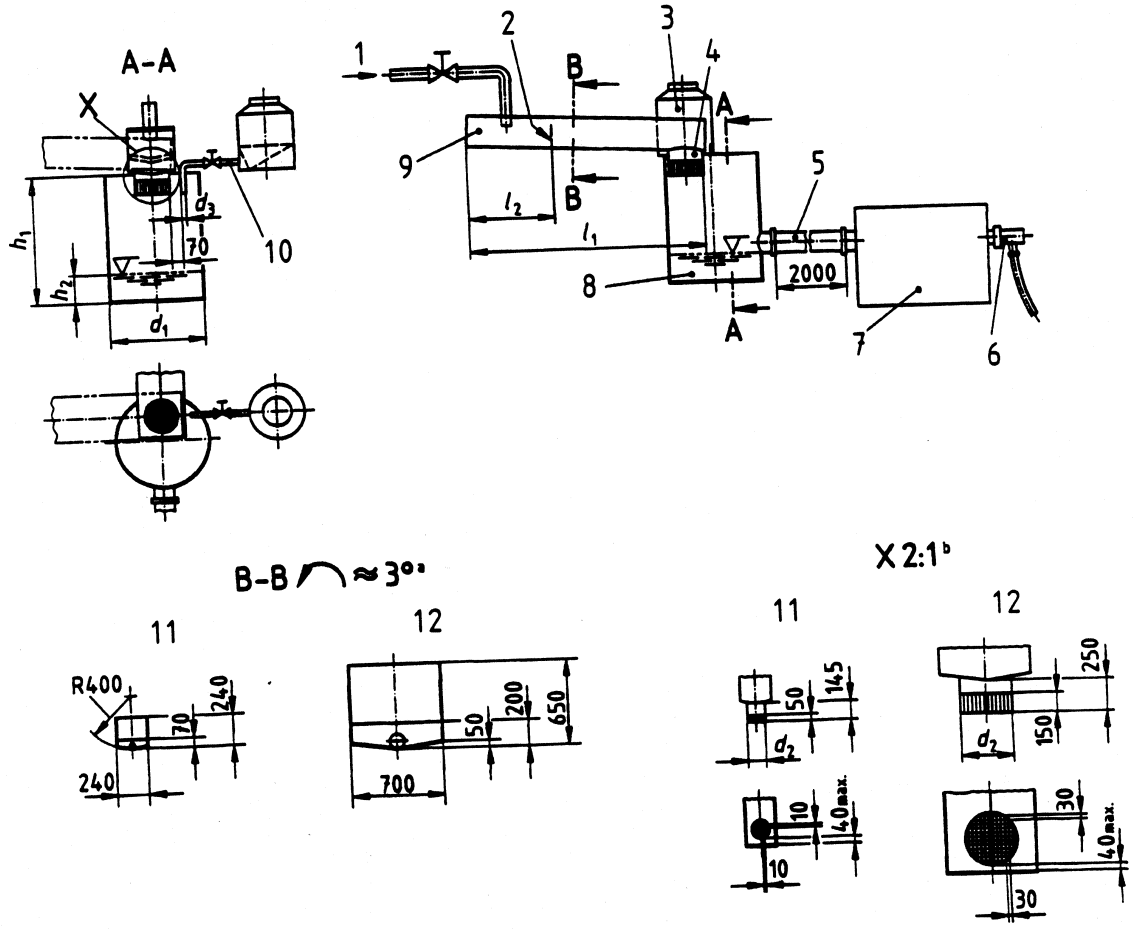


Key

a) Sludge trap volume as indicated by the manufacturer
b) Sludge trap volume to be filled with an inert and impermeable material having a smooth surface
1 Partition
2 Static water level
3 Sludge trap
4 Separator
5 Collecting chamber (see Figure 4)
6 Supply pipe, inclined at (2 ± 0,5) %

Figure 3b) — Sludge trap combined and below the static water level of the separator

Dimensions in millimetres



Key

1 Water supply
2 Weir
3 Receptacle for light liquid
4 Outlet pipe
5 Supply pipe, inclined at (2 ± 0,5) %
6 Sampling pipe
7 Separator
8 Collecting chamber
9 Supply channel, inclination ≤ 5 %
10 Light liquid supply pipe
11 For NS ≤ 6
12 For 6 < NS ≤ 25
[a] Supply channel with weir (on a larger scale)
[b] Outlet pipe with flow regulation grid

Figure 4 — Test apparatus for separators ≤ NS 25

8.5.1.2 Test apparatus

The test apparatus for nominal size of the separators ≤ NS 25 shall comply with Figures 4 and 5 and Table 3.

The supply pipe between the collecting chamber and the separator shall have the same nominal diameter DN as the inlet to the separator. For separators without combined sludge trap, having two inlet pipes, the supply pipe close to the collecting chamber shall be divided into two branch pipes each having a length of 2 m. The cross section of the supply pipe closest to the collecting chamber but before branching shall be equivalent to the total cross section of the two branch pipes.

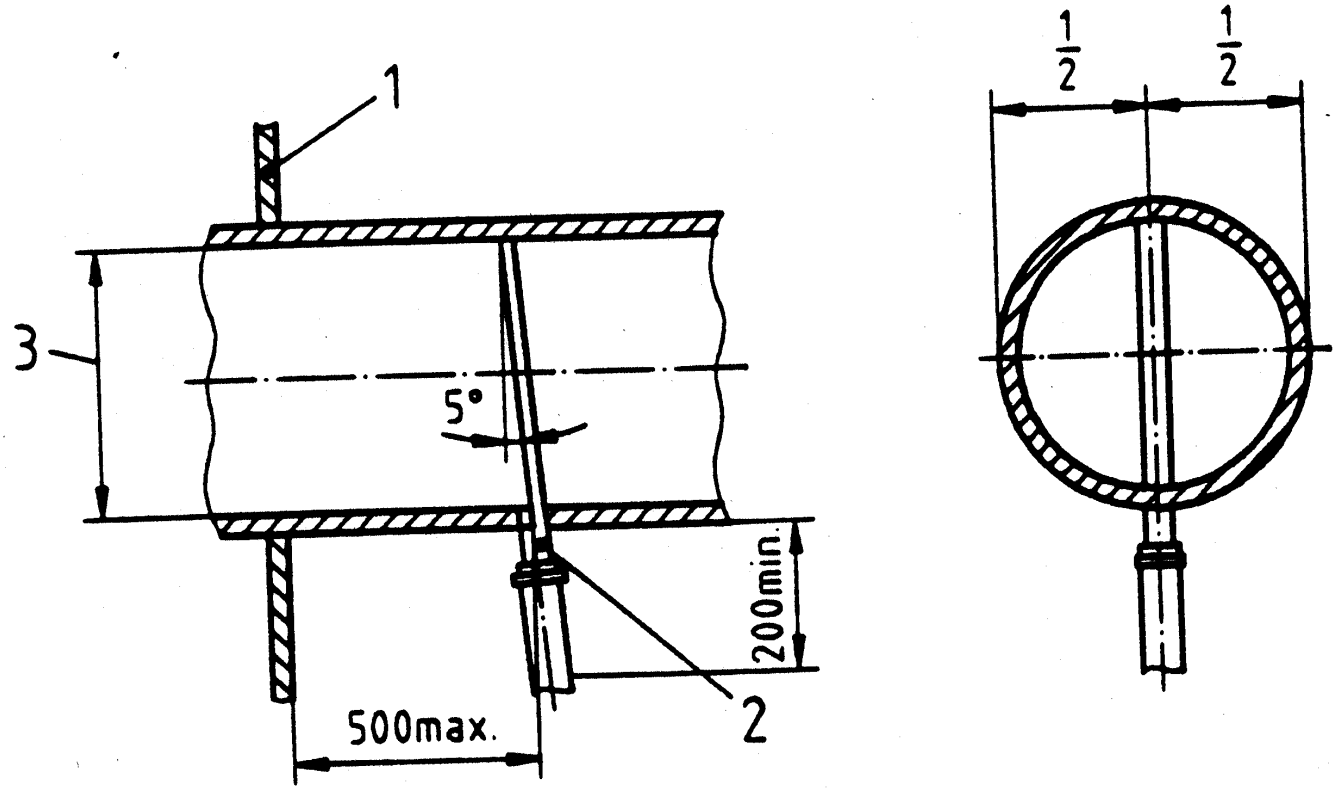
The test fluids shall be supplied by means of dosing pumps allowing appropriate flow control or by gravity. The flow rate shall be constant during the test.

The outlet pipe(s) from the supply channel(s) shall be fitted with a stream regulating grid. The cross section of the outlet pipe(s) shall be totally and uniformly charged with water. The bottom(s) of the outlet pipe(s) from the supply channel(s) and light liquid supply pipe shall be at the same level.

Table 3 — Dimensions

Nominal size of separator (NS)	d_1 mm	d_2	d_3	h_1 mm	h_2 mm	l_1 mm	l_2 mm
NS < 7	400	DN 125	DN 12	500	200	1 500	450
7 ≤ NS ≤ 25	1 000	DN 300	DN 25	900	300	2 500	900

Dimensions in millimetres



Key
1 Wall of separator
2 Internal diameter ≈ 12,5 mm
3 Nominal diameter of outlet pipe of the separator

Figure 5 — Sampling device

8.5.1.3 Test fluids

— Water:

The water shall be drinking water or river water purified by mechanical means. The temperature shall be between 4 °C and 20 °C and the pH value shall be 7 ± 1.

— Light liquid:

The light liquid shall be fuel oil in accordance with ISO 8217, designation ISO-F-DMA, having a density of (0,85 ± 0,015) g/cm^3 at a temperature of 12 °C.

8.5.1.4 Test procedure

Fill the separator with water. Measure the maximum static water level and corresponding volume V_k. At the predetermined maximum allowable flow rate Q_w measure the new water level.

Calculate the total duration of the test T as the sum of the running-in period T_E and the sampling period T_P, so that $T = T_E + T_P$. The running-in period shall be equivalent to the length of time needed to exchange the volume of water V_k four times, with a minimum period of 15 min, and is determined by the following formula:

$$T_E = \frac{4 \text{ x } V_k}{Q_w \text{ x } 60} \quad (1)$$

where

T_E is the running-in period, in min, with a minimum period of 15 min;

V_k is the water volume of the separator, in l;

Q_w is the maximum allowable flow rate of water through the separator, in l/s.

The sampling period T_P shall be 5 min.

Maintain the maximum allowable flow rate of water Q_w with a tolerance of ± 2 % and add the light liquid at a constant flow rate of 5 ml/l with a tolerance of +5 % for the total duration of the test T, ensuring no light liquid dwells in the collecting chamber. The effluent shall be discharged through the sampling pipe during the whole of the test T.

From the beginning of the sampling period T_P, and at 1 min intervals, take one sample, at least 500 ml, from every outlet of the separator via the sampling pipe. This will give a total of five samples per outlet.

Analyse the samples by infrared spectroscopy or by gas chromatography in accordance with Annex A using the light liquid in accordance with 8.5.1.3 as the reference liquid.

Calculate the content of residual oil as the arithmetical mean value of the samples. No individual sample shall have a value higher than 30 mg/l.

Determine the nominal size of the separator in accordance with clause 4.

8.5.2 Separators built in-situ

For verification of the nominal size according to clause 4 and 5.5.3 b) the dimensions shall be checked for compliance with the requirements of 5.5.3, Table 2 and Figures 1 and 2 with an accuracy of 1 mm.

8.6 Reaction to fire

8.6.1 Products deemed to satisfy the requirements for reaction to fire Class A1

The product, or the materials from which it is made, meeting the specifications of 5.2.2, 5.2.3 and 5.2.5 and those of Annex E, satisfy reaction to fire Class A1 in accordance with the provisions of EC Decision 96/603/EC, as amended, without the need for testing. Products/materials present in minor quantities (e.g. seals) may be disregarded.

8.6.2 Products not deemed to satisfy reaction to fire Class A1.

The product, or the materials from which it is made, which are not Class A1 in accordance with 8.6.1, shall be tested and classified, as separate materials, according to the provisions of EN 13501-1. Products/materials present in minor quantities (e.g. seals) may be disregarded.

9 Type testing of factory made separators

9.1 General

The separator shall be subjected to and pass all the tests in Table 4 to confirm compliance with clauses 4, 5, 6 and 7 before delivery commences and prior to a possible independent approval, if relevant.

This procedure shall also be applied if the grease separator is amended in any way which will affect performance.

The type tests shall be carried out in order to demonstrate compliance with the requirements of this standard. Tests previously performed in accordance with the requirements of this standard (same product, same or more onerous test method and same sampling procedure) may be taken into account for the purpose of type testing. For the purpose of type testing, products may be grouped into families per characteristic where it is considered that tests done for that characteristic on any one product within the family are representative for the same characteristic for all other products within the same family. Full reports of these tests shall be retained by the manufacturer and shall be made available to a third party for examination, where applicable.

9.2 Prototypes and documentation

The prototype to be tested shall be equivalent in all respects to the product proposed for manufacture. However, for determining the nominal size of the separator in accordance with 8.5.1 the prototype may be made from different materials.

A description of the system, the installation, operating and maintenance instructions and possible static calculations, test reports, material suppliers' certificates shall be made available. Also design details, overall dimensions, functional dimensions, internal component details and material specifications shall be made available.

Table 4 — Type tests

Aspect to be tested	Test method/evaluation of conformity according to	Nature and number of samples, test specimens and measurements	Requirements according to
Nominal size	8.5	Every prototype separator	4
General	5.1	Every prototype separator	5.1
Concrete	8.1.1	According to 5.2.2	5.2.2
Metallic materials	Analysis or supplier's certificate	According to the standards referred to in 5.2.3	Manufacturer's material specification and 5.2.3
Plastics materials	8.1.2	According to the standard referred to in 5.2.4	5.2.4
Vitrified clay	8.1.3	According to 8.1.3	5.2.5
Sealing materials	Standard referred to in 8.1.4	According to the standard referred to in 5.2.6	5.2.6
Coatings:			
– Technical documentation	Check for completeness		5.2.7.2
– Surface preparation	EN ISO 8501-1	Prototype separator system	5.2.7.3.1
– Application and curing	Check for compliance with technical documentation		5.2.7.3.2
– Dry film thickness	8.1.4.2.1	Concrete or steel test pieces according to 8.1.4.2.6; five measurements on each test piece	5.2.7.4 a)
– Adhesion	8.1.4.2.2	Three concrete or steel test pieces according to 8.1.4.2.6; one measurement on each test piece	5.2.7.4 b)
– Impact resistance	8.1.4.2.3	Three steel test pieces according to 8.1.4.2.6; one measurement on each test piece	5.2.7.4 c)

Table 4 *(continued)*

Aspect to be tested	Test method/evaluation of conformity according to	Nature and number of samples, test specimens and measurements	Requirements according to
– Scratch resistance	8.1.4.2.4	Three steel test pieces according to 8.1.4.2.6; one measurement on each test piece	5.2.7.4 d)
– Porosity	8.1.4.2.5	Every test specimen	5.2.7.4 e)
Chemical resistance of internal surfaces:			
– Plastics materials and linings	8.2.2	Three test pieces according to 8.1.2.2 per material type	5.2.8.1.3
– Sealing materials	8.2.3	According to ISO 1817	5.2.8.1.4
– Concrete	8.2.1	8.1.1	5.2.2
– Coatings	8.2.4	Three steel test pieces according to 8.1.4.2.6 per test	5.2.8.1.5
Chemical resistance of external surfaces	8.3	Three test pieces according to 8.1.4.2.6 per test	5.2.8.2
Dimensions of chambers and components	Measurement for compliance with manufacturer's documentation	Prototype separator	9.2
Maximum operational liquid level	Procedures in 8.5.1	Prototype separator	3.11
Watertightness of components	8.4.1	Prototype separator and, where necessary, test apparatus according to Figure 2	5.3.2
Ventilation	Visual inspection	Prototype separator	5.3.10
Accessibility	Visual inspection and measurement according to 8.4.2	Prototype separator	5.3.3
Fall	Measurement	Prototype separator	5.3.9
Inlets, outlets, connectors	Visual inspection and measurement according to 8.4.2	Prototype separator	5.3.4
Internal components	Visual inspection; test by way or trial according to 8.4.2	Prototype separator	5.3.5
Sludge trap	Visual inspection according to 8.4.2	Prototype separator	5.3.6
Access covers	Visual inspection Odour-tightness according to 8.4.3	Prototype separator	5.3.7
Reaction to fire	8.6.2	Material test	5.2.9
Structural stability	Verification of existence of certified documents showing compliance with 5.4		5.4
Functional requirements			
– General	Verification on the basis of the drawings		5.5.1
– Automatic warning devices/additional devices	Verification existence of certificates	Prototype separator	5.5.2

Table 4 *(continued)*

Aspect to be tested	Test method/evaluation of conformity according to	Nature and number of samples, test specimens and measurements	Requirements according to
Marking	Visual inspection	Prototype separator	6
Manufacturer's product information	Inspection of details for completeness		7

10 Evaluation of conformity

10.1 General

Products manufactured to this standard shall be subjected to evaluation of conformity procedures as follows:

a) type testing (see 9.1);

b) factory production control (see 10.2).

The control by a third party is recommended. If third party control is carried out this should be done in accordance with Annex D.

NOTE The actual practice of third party control in the different countries can be maintained as long as the third party control in this standard retains its recommendatory character.

10.2 Factory production control

The purpose of factory production control (FPC) is to ensure that the production of grease separators conforms to the technical requirements of this standard.

The facilities necessary for FPC shall include the test equipment for control based on the requirement of this standard.

The manufacturer's FPC documentation shall include details of all steps of production from the arrival of the raw materials through to the final product leaving the factory.

Annex B, Tables B.1 to B.3, shall be the minimum prerequisite of factory production control.

Annex A
(normative)

Analysis of effluent samples

A.1 General

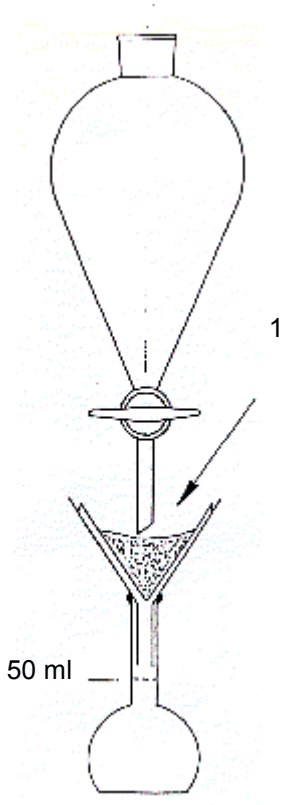
Samples shall be analysed for their hydrocarbon content using infrared spectroscopy in accordance with A.2 or gas chromatography in accordance with A.3.

In case of dispute, the infrared spectroscopy method is the reference method.

A.2 Infrared spectroscopy method

A.2.1 Extraction and preparation of the extract

An effluent sample of approximately 500 ml is weighed into a separating funnel with a rated volume of 1000 ml, directly from the sampling device (see Figure A.1). Within 15 min of sampling the pH shall be set to between 1 and 2 using sulphuric acid (H_2SO_4) and 50 ml of 1.1.2-trichloro-1.2.2-trifluoroethane ($C_2Cl_3F_3$) shall be added. It is then immediately shaken, with a frequency of 3 Hz to 4 Hz for 10 min and the phases allowed to settle for 30 min. Alternatively, tetrachloroethylene (C_2Cl_4) (IR grade) may be used as the extraction solvent.



Key
1 Adding trichloro-trifluorethane up to the rated volume

Figure A.1 — Filling-up with trichloro-trifluoroethane

If the samples have to be transported to an external laboratory, they shall be weighed into glass bottles. The samples shall be preserved within 15 min by addition of acid as described above. They shall either be further preserved by addition of 1.1.2-trichloro-1.2.2-trifluoroethane as above before transport, or they shall be sent to the analysis laboratory at 4°C. If preserved by solvent, at the analysis laboratory the samples shall be transferred to separating funnels for extraction as above. If the samples have been refrigerated then the solvent should be added to the sample bottle, then transferred to separating funnels for extraction as above.

After phase separation the organic fraction is run off and immediately filtered through approximately 10 g of anhydrous sodium sulphate (Na_2SO_4) into a volumetric flask with a rated volume of 50 ml. The extract is made up to the mark with the solvent, washed through the sodium sulphate so as to include any hydrocarbons remaining in the sodium sulphate.

A.2.2 Evaluation

Measurement is made against a reference of the pure solvent of the same layer thickness using matched cuvettes of equal length. Before measurement, a transmission value of exactly 100 % shall be set with the cuvettes inserted, at 3,2 µm. Those absorption bands showing 3,38 µm and 3,42 µm shall be recorded.

The mass concentration of the hydrocarbons in the water sample is obtained from:

$$G = \frac{1,4 \cdot V_{TE}(E_1 / C_1 + E_2 / C_2)}{V_P \cdot d} \qquad \text{(A.1)}$$

where

G is the mass concentration of the hydrocarbons in the water sample, in mg/l;

V_{TE} is the volume of the extracting agent used for extraction, in ml;

E_1 is the spectral absorption magnitude of CH_3 band at 3,38 µm;

C_1 is the molecular extinction coefficient of the CH_3 band (8,3 ml/mg cm);

E_2 is the spectral absorption magnitude of CH_2 band at 3,42 µm;

C_2 is the molecular extinction coefficient of the CH_2 band (5,4 ml/mg cm);

V_P is the volume of water sample used, in l;

d is the layer thickness of absorbent solution, in cm.

The result is indicated as a rounded value to an accuracy of:

0,1 mg/l for < 10 mg/l and

1 mg/l for ≥ 10 mg/l.

Fuel oil ISO-F-DMA in accordance with 8.3.3.1.2 shall be used as the reference liquid for calibration, i.e. to determine the group absorbance coefficients.

It is possible to use "fixed wavelength" infrared devices when the hydrocarbon concentrations are more than 5,0 mg/l. With this method the hydrocarbon concentration is evaluated solely using the CH_2 absorption band at 3,42 µm. The fuel oil in accordance with 8.3.3.1.2 shall be used for calibration. Extraction and preparation of the extract shall be as described in A.2.1.

A.3 Gas chromatography method

A.3.1 General

This instruction describes a simplified analytical method based on EN ISO 9377-2 to determine fuel oil ISO-F-DMA in accordance with 8.3.3.1.2 in water by gas chromatography (GC). The method is suitable for determining fuel oil, if the concentration is greater than 1 mg/l. This method is not suitable for wastewater.

The samples are extracted in petroleum ether, then analysed by gas chromatography between C_{10} and C_{40}.

A.3.2 Reagents

a) extraction solvent: petroleum ether, boiling range 40 °C to 60 °C;

b) sodium sulphate (Na_2SO_4), anhydrous;

c) fuel oil ISO-F-DMA in accordance with 8.3.3.1.2 to prepare standards;

d) reference standards n-decane ($C_{10}H_{22}$) and n-tetracontane ($C_{40}H_{82}$).

A.3.3 Interferences

If fuel oil ISO-F-DMA in accordance with 8.3.3.1.2 without additives is used, interferences are not to be expected.

A.3.4 Procedure

The petroleum ether shall be spiked with n-decane and n-tetracontane prior to analysis to give a concentration of approximately 2 mg/l to 10 mg/l. All solutions analysed with the gas chromatograph shall contain these two chemicals.

The sample may be taken in a sample bottle or separating funnel. Weigh the sampling vessel. Put approximately 500 ml of water directly into the sample vessel then re-weigh to obtain the mass of the sample. If the samples have to be transported to an external laboratory, they shall be taken in glass bottles and acidified to pH 2 then transported at 4°C. Add the appropriate volume of petroleum ether to the extraction vessel and shake for at least 10 min. To analyse over the range 1 mg/l to 40 mg/l oil in water use 10 ml of petroleum ether. For the analysis range 10 mg/l to 150 mg/l use 25 ml of petroleum ether. If extracted in a separating funnel, run off the aqueous phase then collect the organic phase. If a glass bottle is used, then a separator device may be used to recover the organic phase. The collected extract is dried using sodium sulphate.

NOTE Failure to dry the extract sufficiently may irreparably damage the GC column.

A.3.5 Gas chromatographic analysis

The gas chromatograph shall be equipped with a non-discriminating injection system and a flame ionisation detector (FID). The GC column shall be fused silica with one of the following stationary phases:

Non-polar, immobilised 100 % dimethylpolysiloxane ($CH_3[(CH_3)_2SiO]_nSi(CH_3)_3$), or 95% dimethyl-/5 % diphenylpolysiloxane ($CH_3[(C_6H_5)_2SiO]_nSi(CH_3)_3$) or modified siloxane polymer ($H_3Si(OSiH_2)_nOSiH_3$).

Typical dimensions:

— Length : 5 m to 30 m

— Internal diameter : 0,25 mm to 0,53 mm

— Film thickness : 0,25 µm to 1,2 µm

A.3.6 Example GC conditions

— Injection technique: Programmed temperature vaporisation (PTV)

— Injection temperature: 50 °C to 300 °C

— Injection volume: 1 µl (NOTE Larger volumes will give increased sensitivity.)

— Column length: 30 m

— Column internal diameter: 0,25 mm

— Liquid phase: DB 5 MS

— Pre-column: Deactivated fused silica capillary

— Carrier gas: Hydrogen (H_2)

— Carrier gas pressure: 80 kPa

— Oven temperature programme: 40 °C for 5 min, 10 °C/min to 300 °C for 20 min

— Detector: Flame ionisation detector (FID)

— Detector temperature: 300 °C

— Make up gas: Nitrogen (N_2)

— Make up gas flow: 25 ml

The system shall be able to integrate the whole chromatogram and compensate for the blank chromatogram.

The total peak area between n-decane and n-tetracontane shall be integrated. The integration begins immediately at the end of the n-decane peak and ends immediately in front of the n-tetracontane peak. The signal level before the solvent peak shall be used as the baseline. The total peak area for the sample is measured and the area for a blank chromatogram (spiked petroleum ether) is subtracted. This correction eliminates the effect of column bleeding. The extract may be diluted to bring it within the calibration range. A blank chromatogram shall be run at least once every ten samples. A check on the validity of the calibration shall be done with each series of samples using an oil in petroleum ether standard with a concentration between 40 % and 80 % of the calibration range. The result of the check solution shall be within 10 % of the calibration.

A.3.7 Calibration

The system shall be calibrated using a series of five external standards covering the required analysis range and a blank. These standards are prepared in petroleum ether spiked with n-decane and n-tetracontane (see Tables A.1 and A.2). The standards shall be prepared by dilution of a stock standard.

Table A.1 — 10 ml extract, working range 1 mg/l to 40 mg/l

Oil in spiked petroleum ether (mg/l)	Equivalent oil in water (mg/l)
400	8
800	16
1 200	24
1 600	32
2 000	40

Table A.2 — 25 ml extract, working range 10 mg/l to 150 mg/l

Oil in spiked petroleum ether (mg/l)	Equivalent oil in water (mg/l)
600	30
1 200	60
1 800	90
2 400	120
3 000	150

Calculate a calibration function by linear regression of the peak areas and oil in petroleum ether concentrations.

A.3.8 Calculation of the oil concentration

The mass concentration of the hydrocarbons is obtained from:

$$G = \frac{1,4 \cdot V_{TE}(E_1 / C_1 + E_2 / C_2)}{V_P \cdot d} \quad \text{(A.2)}$$

where

G is the concentration of oil, in mg/l;

a is the slope of the calibration function, in l/mg;

A_{m} is the peak area of the sample extract, in instrument specific units;

f is the dilution factor;

m_1 is the mass of the filled sampling bottle or separating funnel, in g;

m_2 is the mass of the empty sampling bottle or separating funnel, in g;

V is the volume of the final extract, in ml;

b is the intercept of the calibration function, in instrument specific units;

w is the density of water, (1,00 g/ml).

Annex B
(normative)

Factory production control

Table B.1 — Receiving inspection and testing

Aspect of inspection	Method of inspection	Frequency of inspection	Document retention period
Concrete materials:			
Sand	Supplier's certificate	Every delivery	1 year
Stones/gravel	Visually	Every delivery	1 year
Water	Supplier's certificate	Regularly	1 year
Cement	Supplier's certificate	Every delivery	5 years
Additives	Supplier's certificate	Every delivery	1 year
Ready mix concrete	Supplier's certificate	Every delivery	5 years
Reinforcement	Certificate/measurement	Every delivery	5 years
Complete concrete body	Supplier's certificate/measurement of overall dimensions and covering of reinforcement	Every delivery	5 years
Metallic materials:			
Cast iron:			
- Raw materials storage	Visually	Regularly	-
- Pig iron	Supplier's certificate	Every delivery	1 year
- Scrap iron/steel (third party)	Supplier's certificate	Every delivery	1 year
- Scrap returns (first party)	Factory production control	Every delivery	1 year
- Additives	Supplier's certificate	Every certificate	1 year
- Energy for melting:			
• Gas	Supplier's certificate	Regularly/when changed	1 year
• Coke	Supplier's certificate	Every delivery	1 year
- Sand for moulds/cores	Supplier's certificate and sieve analysis	Regularly	1 year
Carbon steel:	Supplier's certificate/visually	Every delivery	1 year
Austenitic steel:	Supplier's certificate/visually	Every delivery	1 year
Plastics materials:			
Glass reinforced plastics:			
- Resin	Supplier's certificate	Every delivery	1 year
- Glassfibre	Supplier's certificate	Every delivery	1 year
Polyethylene for buttweld-sheet assembly	Supplier's certificate	Every delivery	1 year

Table B.1 *(continued)*

Aspect of inspection	Method of inspection	Frequency of inspection	Document retention period
Sealing materials:			
Elastomeric seals:			
- Mechanical properties	Supplier's certificate or test report of independent laboratory	Every delivery	1 year
- Chemical resistance	Supplier's certificate or test report of independent laboratory	Every delivery	1 year
- Dimensions in accordance with the approved factory documents	Measurement	Every delivery	1 year
Coating materials:	Supplier's certificate in accordance with specifications	Every delivery	1 year

Table B.2 — Process control

Aspect of inspection	Method of inspection	Frequency of inspection	Document retention period
Concrete materials:			
Plant mix concrete	To be defined in FPC documentation	To be defined in FPC documentation	1 year
Reinforcement	Measurement	As appropriate for the production method	1 year
Mould control	Visually	Regularly	1 year
Dimensions	Measurement	To be defined in FPC documentation	1 year
Appearance	Visually	Each separator	1 year
Cover on reinforcement	Non-destruction testing	To be defined in FPC documentation	5 years
Compressive strength	Compressive strength test	Three samples per week of production	5 years
Metallic materials:			
Cast iron:			
- Moulding sand characteristics	Laboratory	Once a shift	1 year
- Ductile iron additives	Weighing/measurement	Each treatment ladle	1 year
- Temperature of melt in the casting ladle/furnace	Visually/pyrometer	Frequently	1 year
- Composition of metal /analysis:			
• Casting ladle	Laboratory	Each treatment or each furnace or each ladle	5 years
• Mould control	Visually	Regularly	-
• Casting operation	Visually	Regularly	-
• Standing time of each pouring ladle	Visually	Each cast	-

Table B.2 (*continued)*

Aspect of inspection	Method of inspection	Frequency of inspection	Document retention period
- Mechanical properties:			
• Tensile strength	5.2.3	5.2.3	5 years
• Elongation %	5.2.3	5.2.3	5 years
• Modularity	5.2.3	5.2.3	5 years
- Appearance	Visually	Each cast	-
Carbon steel:			
- Welding preparation	Visually/measurement	Regularly	-
- Welding assembly	Visually/measurement	Regularly	-
- Welding results	Test plates	Three times a year/welder	1 year
- Appearance of the welding	Visually	every welding seam	-
- Dimensions	Measurement according to drawing	Regularly	-
Austenitic steel:			
- Welding preparation	Visually/measurement	Regularly	-
- Welding assembly	Visually/measurement	Regularly	-
- Welding results	Test plates	Three times a year/welder	1 year
- Appearance	Visually	Every welding seam	-
- Dimensions	Measurement according to drawing	Regularly	-
Plastics materials:			
Glass reinforced plastics:			
- Mould control	Visually	Regularly	-
- Resin-glass ration	Ratio verification	Every batch	-
- Inner and outer lining	Visually	Every separator	1 year
- Laminate build-up	Visually	Every separator	1 year
- Wet laminate thickness	Measurement	Every separator	1 year
- Removal from the mould/appearance	Visually	Every separator	-
- Dimensions	Measurement	Regularly	-
Polyethylene for buttweld sheet assembly:			
- Welding preparation	Visually/measurement	Regularly	-
- Welding assembly	Visually/measurement	Regularly	-
- Welding results	Test plates	Three times a year/welder	1 year
- Appearance of the welding	Visually	Every welding seam	-
Coatings:			
-Surface preparation	5.2.7.3.1	Every separator	-
- Working room temperature	Measurement	Regularly	-
- Working room humidity	Measurement	Regularly	-
- Humidity of concrete	Measurement	Every separator	-

Table B.2 (*continued)*

Aspect of inspection	Method of inspection	Frequency of inspection	Document retention period
- Time between cleaning and application	Supplier's specification	Regularly	-
- Coating mixture	Supplier's specification	Regularly	-
- Hardening time/layer	Measurement	Every layer	-
- Control of coating thickness	Measurement	Every separator	-
- Pore absence test	Measurement	Every separator	-

Table B.3 — Production control

Aspect of inspection	Method of inspection	Frequency of inspection	Document retention period
Appearance	Visually	Every separator	-
Automatic alarm device	Supplier's certificate	Every delivery	-
Automatic closure device	Visually	Every delivery	-
Manhole cover	Documents showing compliance with EN 124:1994	Every separator	1 year
Dimensions	Measurement regarding the approved document	Every separator	1 year
Elastomeric sealings	Visually	Every separator	1 year
Watertightness	Filling with water	Regularly	1 year
Marking	Visually	Every separator	1 year

Table B.4 — Third party control (where applicable)

Aspect of inspection	Method of inspection	Frequency of inspection	Documentation
Receiving inspection	Table B.1	Every visit	In writing/report
Process control	Table B.2	Every visit	In writing/report
Product control	Table B.3	Every visit	In writing/report
Inspection, measuring and test equipment	Certificate[a]	Every visit	In writing/report
Handling, storage, packaging and delivery	Visually	Every visit	In writing/report
Control of non-conforming products	Visually/manufacturer's documents	Every visit	In writing/report
Factory production control records	Visually	Every visit	In writing/report

[a] For load testing machines: Certificate of an authorised institute. For other measuring equipment: Internal quality control records.

Annex C
(informative)

Established methods of calculation and testing

C.1 Germany

DIN 1045, Beton und Stahlbeton – Bemessung und Ausführung.

DIN 1055-3, Lastannahmen für Bauten – Verkehrslasten.

DIN 1072, Straßen- und Wegbrücken – Lastannahmen.

DIN 4034-1, Schächte aus Beton- und Stahlbetonfertigteilen – Schächte für erdverlegte Abwasserkanäle und -leitungen – Maße, Technische Lieferbedingungen.

DIN 4281, Beton für Entwässerungsgegenstände – Herstellung, Anforderungen und Prüfungen.

These standards can be bought at the following address:

Beuth Verlag GmbH
D-10772 Berlin

ATV A 127, Richtlinie für die statische Berechnung von Entwässerungskanälen und –leitungen.

This code of practise can be bought at the following address:

Gesellschaft zur Förderung der Abwassertechnik e.V. (GFA)
Theodor-Heuss-Allee 17
D-53773 Hennef

C.2 The Netherlands

BRL 5252, Vetafscheiders en slibvangputten van beton.

This prescription can be bought at the following address:

KIWA NV
Certificatie en Keuringen
Sir Winston Churchill-laan 273
NL-2280 AB Rijswijk

C.3 France

Ouvrages d'assainissement, fascicule N° 70.

This prescription can be bought at the following address:

Diffusion et vente
Direction des journaux officiels
26, Rue Dessaix
F-75727 Paris Cedex 15

C.4 Austria

ÖNORM B 2503, Kanalanlagen – Ergänzende Richtlinien für die Planung, Ausführung und Prüfung

This standard can be bought at the following address:

Verkauf des ON

Heinestraße 38

A-1020 Wien

Annex D
(informative)

Control by third party (third party control)

D.1 General

The purpose of third party control is:

a) to ensure that the quality level of the product is continuously maintained according to the requirements of this standard, and

b) to give independent certification to the products.

NOTE For a new production unit this inspection should be undertaken, at the request of the manufacturer, within a twelve month period of its commissioning.

D.2 Procedure of the third party control

D.2.1 Factories certified to EN ISO 9001

Third party control consists of:

a) controlling the validity of the licence granted to the manufacturer for compliance of his quality assurance system with EN ISO 9001;

b) verifying that type testing has been satisfactorily carried out;

c) verifying that the results of controls made by the manufacturer are in compliance with the requirements of this standard;

d) independent random examination of finished products.

The third party control is carried out at least twice a year, at regular intervals, and can be undertaken without previous announcement.

D.2.2 Factories not certified to EN ISO 9001

For factories not certified to EN ISO 9001 the requirements of Annex B, Table B.4, can be applied.

Third party control consists of:

a) assessing the adequacy of the staff and equipment for continuous and orderly manufacture;

b) verifying that type testing has been satisfactorily carried out in accordance with the requirements of this standard;

c) verifying that factory production control is independent of production;

d) verifying that the manufacturer's controls and tests have been carried out in compliance with this standard, and that the results have met the requirements (see Annex B, Tables B.1 to B.3), and

e) independent random examination of finished products.

The third party control is carried out at least four times a year, at regular intervals, and can be undertaken without previous announcement.

The frequency of inspection may be reduced to two times a year provided that the third party is satisfied that:

— the manufacturer's internal quality control system is adequate;

— the controls have been continuously carried out in a proper and effective way for one year, and

— the results are in compliance with the requirements of this standard.

This reduced inspection frequency remains valid for as long as no defective products are detected.

The main aspects of third party verification are given in Table B.4.

D.3 Report by the third party

The results of the third party control are given in a written report. The manufacturer signs this report. If no agreement can be reached between the inspector and the manufacturer on the content of the report, the manufacturer will sign the report and state his reservations thereon.

This report contains at least the following items:

— name of the manufacturer;

— name and location of the production plant;

— signature of the manufacturer's representative, place and date;

— the third party inspector's signature.

It also contains:

a) for factories certified to EN ISO 9001, a statement regarding:

— the validity of the quality assurance certificate, and

— the conformity of the products.

b) for factories not certified to EN ISO 9001, a statement regarding the results of the inspection in terms of:

— staff;

— equipment;

— conformity of the products;

— factory production control.

Within three weeks of the inspection, an official report will be sent to the manufacturer by the third party.

D.4 Non-conforming units

If, during a third party inspection, a component of a separator system fails to meet any requirement to be tested, or if the third party test results do not confirm those recorded in the manufacturer's internal quality control documentation, the third party conducts further investigations and/or testing to identify the reason(s) for this discrepancy.

Annex E
(normative)

Relevant extracts from EC Decision 96/603/EC, as amended

The materials, and products made from them, that are listed in Table E.1, shall, on account of their low level of combustibility and subject to the conditions also set out in this annex, be classified in Class A1.

For the purpose of this classification, no reaction to fire testing of those materials and products made from them shall be required.

Products shall be made only of one or more of the materials in Table E.1 if they are to be considered as Class A1 without testing. Products made by gluing one or more of the materials together are Class A1 without testing provided that the glue does not exceed 0,1% (m/m or V/V) (whichever is the more onerous).

Products made by coating one of the materials with an inorganic layer (e.g. coated metal products) may also be considered as Class A1 without testing.

None of the materials in Table E.1 is allowed to contain more than 1,0 % (m/m of V/V) (whichever is the more onerous) of homogeneously distributed organic material.

Table E.1 — List of materials/products of Class A1

Material	Notes
Concrete	Includes ready-mixed concrete and precast reinforced and prestressed products
Aggregate concrete (dense and lightweight mineral aggregates, excluding integral thermal insulation)	May contain admixtures and additions (e.g. PFA), pigments and other materials. Includes precast units
Autoclaved aerated concrete units	Units manufactured from hydraulic binders such as cement and/or lime, combined with fine materials (siliceous material, PFA, blast furnace slag), and cell generating material. Includes precast units
Iron, aluminium, copper, steel and stainless steel	Not in finely divided form
Clay units	Units from clay or other argillaceous materials, with or without sand, fuel or other additives. Includes bricks, tiles, paving and fireclay units (e.g. chimney liners)

Annex ZA
(informative)

Clauses of this European Standard addressing the provisions of EU Construction Products Directive

ZA.1 Scope and relevant characteristics

This European Standard has been prepared under the mandate M/118[1)] given to CEN by the European Commission and the European Free Trade Association.

The clauses of this European Standard shown in this annex meet the requirements of the mandate given under the EU Construction Products Directive (89/106/EEC).

Compliance with these clauses confers a presumption of fitness of the grease separators covered by this annex for their intended use; reference shall be made to the information accompanying the CE marking.

WARNING - Other requirements and other EU Directives, not affecting the fitness for intended uses, can be applicable to the grease separators falling within the scope of this European Standard.

NOTE 1 In addition to any specific clauses relating to dangerous substances contained in the standard, there may be other requirements applicable to the products falling within its scope (e.g. transposed European legislation and national laws, regulations and administrative provisions). In order to meet the provisions of the EU Construction Products Directive, these requirements need also to be complied with, when and where they apply.

NOTE 2 An informative database of European and national provisions on dangerous substances is available at the Construction web site on EUROPA (accessed through *http://europa.eu.int/comm/enterprise/construction/internal/dangsub/dangmain.htm).*

This annex establishes the conditions for CE marking of grease separators intended for the use indicated in the relevant clauses applicable (see Table ZA.1).

Table ZA.1 — Scope and relevant clauses

Construction Product:	Grease separator as covered under the scope of this standard		
Intended use:	Separate greases from wastewater to protect sewerage systems and surface water		
Essential Characteristics	Requirement clauses in this standard	Mandated levels and/or classes	Notes
Reaction to fire	5.2.9	A1 to F	—
Liquid tightness	5.3.2	None	Pass/fail
Effectiveness	4, 5.3.1, 5.3.3 to 5.3.10, 5.5	None	Pass/fail
Load bearing capacity	5.4	None	Pass/fail
Durability	5.2	None	Pass/fail

1) Mandate M/118 "Wastewater engineering products" as amended

ZA.2 Procedure for the attestation of conformity of grease separators

ZA.2.1 System of attestation of conformity

The system of attestation of conformity of the grease separators indicated in Table ZA.1, in accordance with the Decision of the Commission 96/578/EEC of 1996-06-24 as given in annex III of the mandate for "Wastewater engineering products" is shown in Table ZA.2 for the indicated intended use and relevant level(s) and class(es).

Table ZA.2 — System of attestation of conformity

Product	Intended use	Level(s) or class(es)	Attestation of conformity system
Grease separator	Separate greases from wastewater to protect sewerage systems and surface water	Reaction to fire A1[a] and F	4
		Reaction to fire (A1 to E)[b]	3
[a] Products/materials 'deemed to satisfy' without the need for testing [b] Products/materials requiring testing			
System 3: See Directive 89/106/EEC (CPD), Annex III (ii), second possibility System 4: See Directive 89/106/EEC (CPD), Annex III (ii), third possibility			

The attestation of conformity of the grease separators indicated in Table ZA.1 shall be based on the evaluation of conformity procedure indicated in Table ZA.3 resulting from application of the clauses of this European Standard indicated therein.

Table ZA.3 — Assignation of evaluation of conformity tasks

Tasks		Content of the task	Evaluation of conformity clauses to apply
Task under the responsibility of the manufacturer	Factory production control	Parameters related to all relevant characteristics of Table ZA.1	10.2
	Type testing by a notified test lab	Reaction to fire (A1 to E)[b]	9
	Type testing by the manufacturer	All characteristics of Table ZA.1 except reaction to fire	9
[b] Products/materials requiring testing			

ZA.2.2 Declaration of conformity

When compliance with the conditions of this annex is achieved, the manufacturer or his agent established in the EEA shall prepare and retain a declaration of conformity (EC Declaration of conformity) which authorises the affixing of the CE marking. This declaration shall include:

- name and address of the manufacturer, or his authorised representative established in the EEA, and place of production;
- description of the product (type, identification, use ...);
- provisions to which the product conforms (i.e. Annex ZA of this European Standard);
- particular conditions applicable to the use of the product;
- a copy of the CE marking information;
- name and address of the notified laboratory (only in the case of reaction to fire testing);
- name of, and position held by, the person empowered to sign the declaration on behalf of the manufacturer or his authorised representative.

The above mentioned declaration of conformity shall be presented in the language or languages as accepted in the Member State in which the product is to be used.

ZA.3 CE Marking and labelling

The manufacturer or his authorised representative established within the EEA is responsible for the affixing of the CE marking. The CE marking symbol to affix shall be in accordance with Directive 93/68/EC. The CE marking symbol together with the name or identifying mark of the manufacturer and the reference to this European Standard shall be on the grease separator (see Figure ZA.1).

The CE marking symbol together with the following information shall be on the accompanying documents (e.g. delivery ticket) (see Figure ZA.2):

— name and identifying mark of the manufacturer;

— registered address of the manufacturer;

— the last two digits of the year in which the marking is affixed;

— reference to this European Standard;

— description of the product: generic name (grease separator), material and nominal size;

— information on regulated characteristics, i.e.:

- load bearing capacity,

- reaction to fire (only where subject to regulatory requirements),

- coating/lining thickness (where appropriate).

Figures ZA.1 and ZA.2 give examples on the information to be given on the product and accompanying commercial documents respectively.

CE	CE marking, consisting of the "CE" symbol given in Directive 93/68/EEC
AnyCo Ltd	Name or identifying mark of the manufacturer
EN 1825	Number of European Standard

Figure ZA.1 — CE marking information to affix on the grease separator

CE	CE conformity marking, consisting of the "CE" symbol given in Directive 93/68/EEC
AnyCo Ltd, Box 21, B-1050	Name or identifying mark and registered address of the manufacturer
06	Last two digits of the year in which the marking was affixed'
EN 1825-1	Number of European Standard
Grease separator NS 10 Material: Concrete, internal parts: stainless steel	Description of product (material, nominal size)
Load bearing capacity: 5000 kN (dynamic load)	Information on regulated characteristics

Figure ZA.2 — CE marking information to be given on accompanying documents

In addition to any specific information relating to dangerous substances shown above, the product should also be accompanied, when and where required and in the appropriate form, by documentation listing any other legislation on dangerous substances for which compliance is claimed, together with any information required by that legislation.

NOTE European legislation without national derogations does not need to be taken into account.

Bibliography

EN ISO 9001, *Quality management systems – Requirements.*