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Proposal for a

COUNCIL DIRECTIVE

on the approximation of the laws of the Member States concerning road and rail transport tanks used as measuring containers

(submitted to the Council by the Commission)

EXPLANATORY MEMORANDUM

Many tanks are used for the road or rail, transport of beverages, petroleum products or chemical liquids, which are of low viscosity at ambient temperature and pressure. Among them are some which have metrological characteristics such that these tanks can be used to measure the volume of their contents. They are knew as "measuring container tanks" and their use is so convenient that it is even regarded as an economic necessity in most Member States.

It is obvious that such tanks constructed and inspected in one Member State should be able to be sold and used in the other Member States, and above all it is essential that the Community laws should be harmonized in order that tanks being used for the international transport of liquids may be regarded as "measuring container tanks" in the various Member States, so as to avoid multiple gauging operations for the purpose of avertaining and checking the volume of liquid transported.

To show the economic importance of the problem, it will suffice to mentier the principal products concerned. In the first place, there are many hydrocarbons : premium and regular gazoline, gas oil, kerosene, light and heavy fuel-oil; then beverages such as wine, milk and beer; and finally, innumerable chemical products, some of which are dangerous and corrosive to varying degrees (this causes complications, particularly in measuring operations).

This Directive aims at eliminating technical barriers to the free movement or road and rail tansport tanks in report of the metrological requirements (*) which will qualify them as "measuring container tanks".

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(*) It should be remembered on the one hand that the Council has already adopted a Directive concerning the gauging of ships'tanks (Council Directive N° 71/349/EEC of 12 October 1971, published in O.J. N° L 239/15 of 25 October 1971), and on the other share that on 31 December 1971 the Commission transmitted to the Council a proposal for a Directive on "reinforced plastic tanks designed for transporting dangerous substances by road".

The accuracy of measurement of the volume of liquid contained in a measuring container tank depends essentially on three factors :

- The virtual invariability of the volume of the tank and that of its compartments, if any.
- The precision with which these volumes are known for a given filling level.
- The precision with which the level of the free surface of the liquid contained in the tank can be located under normal conditions of use.

After the various national laws in force had been examined, the comparative studies carried out by the Working Party convened by the Commission showed that it was possible, with a few adaptations, to retain the various procedures used in the Member States, so that comparable and acceptable accuracy of measurement might be obtained under fair economic conditions of contruction and use.

For the measurement of the tank capacity, for example, the Directive provides for two procedures :

1. In the first, the manufacture submits the tank for checking, completed and fully equipped, but without having determined its capacity. The metrological service then performs an "EEC gauging" of the tank, i.e. determines its capacity up to certain filling levels, this operation being carried out by transferring water the volume of which is measured by specially calibrated instruments. The measuring levels are marked by means of suitable devices;

2. In the second method, the manufacturer gauges the tank himself and submits it, complete with data and marks indicating the capacities anf filling levels, to the metrological service, which carries out an "EEC initial verification" of the container; i.e., by means of a process similar to that used for EEC gauging, it verifies that the indicated capacities are accurate to within the tolerances and that the level marks are correctly positioned.

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In both cases an "identification plate" must show the information necessary for the use of the tank as a measuring container and must bear the "EEC final initial verification mark" provided for by the outline Directive on measuring instruments and methods of metrological control, adopted by the Council on 26 July 1971 (OJ L 2L2/1, 6 September 1971).

The gauging operations can also give rise to the granting of a gauging certificate (mendatory in the case of rail tankers) incorporating a centimetric table, which is indispensable in order to enable these measuring containers to be used throughout the entire measuring zone.

Although the draft Directive was favourably received by the vast majority of the experts, some differences of opinion did arise. It would be appropriate to mention the most important ones.

1. The experts of one Member State wanted measuring container tanks to be made subject to pattern approval in view of the complexity of these vessels, the multiplicity of types, the possibilities of fraud and the different interpretations that could be placed upon the Directive by the inspectors of the various services. The Commission, like the other experts, thought that this practice, which was not applied in the other member States, would complicate important procedures without bringing any definite advantages. It was felt to be sufficient if the metrological services of the Member States were empowered to require the constructor to provide all relevant information on the construction of the tanks, either at the time of the EEC gauging operations or at the time of EEC initial verification.

2. Whereas, in the interests of more accurate marking of the level, the Directive prescribes that road transport tanks shall have an "expansion chamber" or "dome" of constant centimetric volume, the experts of another Member State would have preferred, for reasons of design sofety, that this device were not mandatory and would have been satisfied with a lesser accuracy. The other experts and the Commission thought that the accuracy provided for by the Directive was indispensable, which meant that it was necessary to use a dome or expansion chamber, and that it was possible, moreover, to construct sufficiently strong tanks incorporating this device.

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3. Finally, there was disagreement about the period of validity of the initial verification mark, which was fixed at four years for road transport tanks and ten years for the others. Although these periods were accepted by the experts of seven Member States, the experts of one Member State would have preferred these periods to be increased to eight and twelve years respectively, while those of another country wanted them to be limited to two years.

- To sum up, it should be noted that the Commission's proposal defines a metrological standard (i.e., a level of manufacturing quality and a level of accuracy for determining the capacity of the containers and for measuring the volume of their contents under specific conditions) close to those which are laid down in most of the Member States but which, owing to their varying specifications, have not hitherto permitted the indispensable reciprocal recognition of controls.

  Given the economic importance of trade involving this means of transport its adoption, will be a significant step towards the free movement of goods between the various Member States.

Consultation of the European Parliament and the Economic and Social Committee

Pursuant to Article 100, second paragraph, the Opinion of these two bodies is required, since implementation of the provisions of the Directive would involue amendment of the legislation of certain Member States.

ANNEX TO EXPLANATORY MEMORANDUM

LEGISLATION IN FORCE IN THE MEMBER STATES RELATING TO MEASURING GAUGES FOR TRUCKS AND TANK-CARS

BELGIQUE

Néant.

DANMARK

Intet.

DEUTSCHLAND

- Gesetz über das Mess- und Eichwesen (Eichgesetz) vom 11. Juli 1969 (Bundesgesetzbl. I S. 759), geändert durch das Gesetz zur Änderung des Eichgesetzes vom 6. Juli 1973 (Bundesgesetzbl. I S. 716).

- §§ 291 - 300 der Eichordnung vom 24. Januar 1942 in der Fassung der Bekanntmachung vom 14. April 1965 (Beilage zum Bundesanzeiger Nr. 100 vom 1. Juni 1965), zuletzt geändert durch die Fünfzehnte Verordnung zur Änderung der Eichordnung vom 26. Juni 1970 (Bundesgesetzbl. I S. 973).

FRANCE

- Ordonnance no.45-2405 du 18 octobre 1945 relative au mesurage du volume des liquides.

- Décret du 3 novembre 1944 portant règlement d'administration publique en ce qui concerne le contrôle des instruments de mesure.

- Décret no.70-791 du 2 septembre 1970 relatif au mesurage des appareils et des vaisseaux affectés à la production, au logement et au transport de liquides soumis à un droit indirect.

- Circulaire no.1966 Bd.o du 6 février 1956, modifiée en 1963 et 1964, fixant les conditions de construction, de contrôle et d'emploi des citernes destinées au transport par route des produits pétroliers et utilisées comme récipients-mesures.

IRELAND

No legislation.

ITALIA

- Regio Decreto 14 gennaio 1926, n.112, col quale sono ammessi alla verificazione prima misure da 1000 litri montate su autocarri, destinate a fornire i carburanti ai rivenditori.

- Regio Decreto 10 giugno 1940, n.865, col quale si ammettono a verificazione prima e periodica misure metalliche per carburanti della capacità di 500 litri.

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- Decreto del Capo Provvisorio dello Stato 8 aprile 1947, numero 338, col quale sono ammesse alla verificazione metrica misure per carburanti della capacità di 2000 litri.

- Legge 31 gennaio 1967, n.33 - Ammissione alla verificazione metrica delle misure per oli minerali in genere ed altri liquidi, della capacità di cinque, dieci, venti, venticinque, cinquanta e cento metri cubi.

LUXEMBOURG

- Loi du 17 mai 1882 sur les poids et mesures, modifiée par la Loi du 28 décembre 1883 et complétée par la Loi du 26 janvier 1922 ainsi que les arrêtés pris pour l'exécution de ces lois.

NEDERLAND

- Wet op de meetmiddelen (Ijkwet 1937).
  Formele bepalingen : in de handel gebruikte meetmiddelen moeten worden geijkt en gestempeld.

- Regeling inzake het ijken van meetmiddelen (Ijkreglement).
  Verdere formele bepalingen : vaststellen van ijkmerken, verplichtingen van aanvragers tot ijken.

- Bepalingen betreffende het ijken van meetmiddelen (Ijkbeschikking).
  Technische voorschriften in het bijzonder voor "meetreservoirs".

UNITED KINGDOM

No legislation.

PROPOSAL FOR A COUNCIL DIRECTIVE

on the approximation of the laws of the Member States concerning road and rail transport tanks used as measuring containers

(presented to the Council by the Commission)

THE COUNCIL OF THE EUROPEAN COMMUNITIES,

Having regard to the Treaty establishing the European Economic Community, and in particular Article 100 thereof,

Having regard to the proposal from the Commission,

Having regard to the Opinion of the European Parliament,

Having regard to the Opinion of the Economic and Social Committee,

Whereas in several Member States mandatory provisions define the methods whereby road and rail transport tanks used as measuring containers can be gauged and verified; whereas these requirements differ from one Member State to another; whereas by reason of their disparity they hinder recognition by all Member States of the result of measurements carried out by one of them;

Whereas these obstacles to the establishment and functioning of the common market can be diminished, or even eliminated, if the same provisions are adopted by all Member States, either in addition to or in place of their existing legislation;

Whereas the Community provisions relating to the gauging and verification methods defined in this Directive ensure that road and rail transport tanks which are used as measuring containers and are gauged and verified by these methods indicate, in a lasting manner and with sufficient accuracy, the amount of liquid transported in them;

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Whereas the gauging and verification of road and rail transport tanks used as measuring containers can be treated in the same way as the initial verification procedure for measuring instruments; and whereas certain provisions of the Council Directive of 26 July 1971 on the approximation of the laws of the Member States concerning common provisions for measuring instruments and methods of metrological control (1) can therefore be applied in this case,

HAS ADOPTED THIS DIRECTIVE :

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(1) OJ N° L 202 of 6 September 1971, p. 1.

Article 1

This Directive applies to mobile tanks used for the transport of liquids, whether containers or tanks permantly or temporarily mounted on a road or rail vehicle, the capacity of which is determined or checked by a Member State in accordance with the provisions set out in the Annexes hereto in order to permit measurement of the volume of liquid they contain.

They are called "EEC measuring container tanks".

This Directive does not apply to casks or barrels.

Article 2

This Directive relates ralely to those EEC measuring container tanks which are expressly constructed for the reception, transport and delivery, at atmospheric pressure, of liquids the quantities of which are determined in units of volume.

Such tanks shall not require EEC pattern approval but shall be subject to metrological control consisting either of an EEC gauging or of an EEC initial verification under the conditions laid down in the Annexes hereto.

Article 3

The Member States shall not refuse, prohibit or restrict the sale and use of measuring container tanks bearing the EEC initial verification mark. They shall accord to EEC marks and certificates the same status as to their own national marks and certificates.

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Article 4

Member States shall put into force the laws, regulations and administrative provisions needed in order to comply with this Directive within aighteen months after its notification and shall forthwith inform the Commission thereof.

Member States shall ensure that the texts of the provisions of national law which they adopt in the field covered by this Directive are communicated to the Commission.

Article 5

This Directive is addressed to the Member States.

ANNEX I

Chapter I

General Remarks - Definition

1.1. EEC gauging

EEC gauging covers all the operations carried out by a Member Sate to determine the capacity of a measuring container tank up to a given filling level under the conditions laid down in this Directive.

1.2. EEC initial verification

EEC initial verification means checking and confirming that a new or reconditioned measuring container tank, or one whose EEC marks are no longer valid, meets the requirements of this Directive.

1.3. Nominal capacity "V_n"

Each compartment of an EEC measuring container tank for road transport is designated by its nominal capacity "V_n", which means the volume of liquid it is considered to contain at 20° C when it is filled to a given level, with the tank placed in the reference position defined in Section 2.4.

1.4. Total capacity "V_t"

The total capacity of a measuring container is the maximum volume of liquid which it can contain, at 20° C, until it overflows, with the tank placed in the reference position defined in paragraph 2.4.

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1.5. Reference point and plane "P" - Reference plane "R"

In the upper part of the tank, there shall be defined an easily accessible reference point "P", which is clearly marked in such a way that it cannot be defaced and in such a way that it is a permanent feature of the tank. The horizontal plane passing through this reference point is termed the reference plane "P".

A horizontal reference plane "R" may also be defined, in relation to which the levels of the free liquid surface are read. Points "P" and "R" may coincide.

1.6. Reading line

The reading line is the line against which the liquid level in the tank is read. It must pass as close as possible to the centre of gravity of the free liquid surface and its position must be determined. Normally, the reading line is vertical, but if the tank is constructed with a pronounced incline this line may itself be inclined; in such a case its position must be determined by an appropriate gauge-guide device.

1.7. Total reference height "H"

The total reference height "H" is the distance measured alonf the reading line between the point where this line meets the reference plane "P" and the foot of this line in the tank.

1.8. Ullage

Ullage is the distance along the reading line between its intersection with the free surface of the liquid and with the reference plane "R".

1.9. Sensitivity

The sensitivity of a measuring container tank in the vicinity of a filling level is the quotient obtained by dividing the change in height of this level by the corresponding variation in the volume of liquid measured. The variation in height is expressed in millimetres and the

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variation in volume either in metres or cubic decimetres or in thousandths of the volume of liquid measured.

1.10. Metrological checking error

The metrological checking error is given by the total of the maximum errors that can occur in the determination, during EEC gauging on EEC initial verification, of the capacity corresponding to the filling levels measured.

1.11. Reading error

The reading error means the maximum error that can occur in the determination of the liquid level.

1.12. Maximum permissible error on any volume measured

This is the maximum error, plus or minus, that is permissible in the measurement of the volume contained, account takes in particular of the gauging error, the reading error, any dimensional in stability of the tank, and the tank's inclination with respect to the reference position.

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ANNEX I

Chapter II

General requirements

2.1. Units

The units of measurement used shall be those laid down by the Council Directive of 18 October 1971 relating to units of measurement, as amended by Annex I of the Act concerning the Conditions of Accession and the Adjustments to the Treaties (1).

2.2. Rigidity

Tanks and tank compartments must be so constructed that they are virtually non-deformable and retain their metrological characteristics. In order to satisfy these requirements :

a) the total reference height "H" shall not vary by more than 1/100, with a minimum of 1 mm, whether the vessel be empty, partly filled or full;

b) the characteristic dimensions of a compartment when empty, partly filled or full, must not vary by more than 1/1000, with a minimum of 1 mm;

c) the total capacity of a compartment must not vary by more than 1/1000 whether the neighbouring compartments be empty of full;

d) the tank may be made of any metal, alloy or synthetic material that is suitable for the type of liquid transported. These materials must possess sufficient durability, stability and strength and a coefficient of linear expension not exceeding 25.10^{-6} Kelvin at 20° C.

2.3. Resistance to deterioration

The material used for the walls, pipework and all components in contact with the liquid or liquids contained must not deteriorate under normal conditions of use. Suitable linings may be used in order to satisfy this requirement.

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(1) O.J. N° L 73 - 27 March 1972, p. 119 and 120.

ANNEX I

2.4. Reference position

The reference position of an EEC measuring container tank is the position it occupies, with all its compartments filled :

a) when the cradle of the container or of the independent tank, or the vehicle on which the tank is mounted, or the entire tractor and semi-trailer unit on which the tank is mounted rests on a flat and horizontal surface;

b) When the rail tanker rests on horizontal railway track.

All measuring wontainer tanks must be placed in the reference position before EEC gauging or initial verification operations are carried out.

2.5. Filling and emptying

Each compartment of an EEC measuring container tank shall be shaped and constructed in such a way that it can, without any special manoeuvre, be filled to overflowing without the formation of air pockets below the filling level and be completely empties by gravity in all normal positions of use, save in the case of exceptional conditions of use which render the foregoing requirements inapplicable (notably emptying by suction).

Channels, mouldings and/or vent pipes of adequate cross-section may be used to satisfy these requirements.

Any baffles and stiffeners inside a compartment must be so shaped and perforated that they do not interfere with the filling and emptying and do not cause any differences in level in the various sections of the compartment during these two operations.

The complete emptiness of the compartment or compartments must be easily verifiable.

2.6. Dome - Expansion chamber

A dome or expansion chamber is a chamber with vertical side-walls which is situated in the upper part of an EEC measuring container tank.

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ANNEX I

2.7. Dipstick

A dipstick is a graduated measure which, when inserted into the liquid along the reading line, enables the level of the liquid to be read off. This instrument must ne specially designed for this purpose.

A dipstick for measuring ullages shall consist of :

- a measure graduated in mm;
- a handle, whose lower part is a flat measure perpendicular to the former, which when in use rests on the reference plane "R" in the upper part of the tank, thus ensuring the correct position of the scale.

These "millimetric dipsticks" must meet the requirements relating to measurements of length in precision class I or II as defined in the Council Directive of 19 November 1973 and must be EEC-inspected and stamped.

In the position of use, the bottom of the scale (zero) must coincide with the reference plane "R".

2.8. Performance of EEC gauging or initial verification operations

Before these operations are performed on new measuring container tanks, the metrology services of the Member States may require the constructor or his representative to supply all such information on the construction of these measuring container tanks as they may consider desirable.

The capacity of compartments shall be determined by decanting water or other suitable liquid, the volume of which shall be measured with the aid of gauges or metering equipment specially calibrated for this purpose.

The gauging and verification operations shall be carried out in such a way and the instruments used shall have an accuracy such that the relative errors in the determination of capacities do not exceed plus or minus two thousandths (2/1000) of the volume measured.

2.9. Approval of EEC gauging and initial verification operations

An identification plate shall be affixed to each tank or tank compartment as near as possible to the level-measuring devices; this plate shall be

made of resistant material and shall state the information specified in sections 3.10 and 4.8. In particular, it shall bear the EEC final initial verification mark.

Furthermore, lead seals bearing the EEC mark (EEC partial initial verification mark) shall be set in such a way as to prevent removal of the plate and of all the fixed devices used to measure the total reference height "H" and the liquid levels.

The type and the characteristics of the EEC initial verification marks shall be as laid down in Article 10, paragraph 2 and Annexe II, section 3, of the Council Directive of 26 July 1971 on the approximation of the laws of the Member States relating to common provisions for both measuring instruments and methods of metrological control. Article 12 of this Directive applies mutatis mutandis.

2.10. EEC gauging certificate

The results of gauging operations may be entered on an EEC gauging certificate incorporating a diagram and where necessary, all relevant information concerning the use of the measuring container.

This certificate is required for rail tankers when the level is measured by means of a device graduated in units of lengh and the measurement is taken at a place other than in a dome whose volume (in cubic cm) is constant. In this case it will incorporate a table showing the volume in litres or cubic decimetres corresponding to the ullages expressed in centimetres and millimetres.

This document shall be prepared in accordance with Annex II.

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ANNEX I

Chapter III

Special requirements concerning independent measuring container tanks or measuring container tanks mounted permanently or temporarily on road vehicles

3.1. Construction and use

These measuring containers must incorporate a dome or expansion chamber of sufficient size to allow measurement in accordance with section 3.6. below.

The conditions prescribed by regulations other than metrological regulations must be compleed with so that the use of the tank as a measuring container is not adversely affected.

Tests associated with the application of these provisions and likely to alter the metrological characteristics must be carried out before EEC gauging or EEC initial verification.

3.2. Ascertainment of the reference position

The reference position must be ascertainable by any suitable means such as a spirit level incorporated in the tank, if the latter has at least one compartment more than one metre in length.

3.3. Outlet orifice

Each compartment shall have an outlet orifice situated at its lowest point and a single discharge pipe with no by-pass, as short and straight as possible, with no counterslope and provided at its extremity with a closure which delimits the capacity of the compartment in a downward direction.

The measured volume shall extend down the discharge pipe as far as the first fluid-tight closure. When there are several fluid-tight closures, as in the case of road tankers designed for the transport of dangerous substances, the volume of the pipe between these various devices shall not form part of the measured volume.

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In this case, the identification plate shall bear the words : "excluding discharge pipe".

Bottom valves situated at the inlet of the discharge pipe shall, as a general rule, be permissible but their position must be easily discernible. The measured volume shall extend as far as the terminal valve.

Manifolds linking the extremeties of the discharge pipes of several compartments may be used when national regulations permit them. In this case they must be removable in order to comply with the regulations of Member States which prohibit their use.

Where a road-tanker measuring container is equipped with a measuring unit, the compartment outlets may be linked by a removable manifold in such a way that each compartment can be emptied individually, by gravity if necessary.

Where a road-tanker measuring container is equipped with a pump for emptying by entire compartment, the equipment shall be completely empty at the end of the operation.

3.4. Permissible piping and internal components

Heating, pipes, vent pipes, spillage drain pipes and conduits for brake lines, lighting circuits, etc. which run through compartments and through recessess in the outer wall used as steps, are permissible provided that their presence does not impede filling, emptying or the reading of levels and is not liable to impair gauging and measuring operations. All these components shall be mentioned on the gauging certificate, if any.

Internal compensators and hollow bodies are prohibited.

3.5. Nominal capacities

Only compartments with a capacity of not less than 100 litres shall be acceptable as measuring containers.

The value of the nominal capacity should preferably be a whole multiple of 100 litres.

For 100 to 1000 litres inclusive, however, it may be a multiple of 1 litre; for more than 1000 but not more than 5000 litres it may be a multiple of 5 litres; thereafter it may be a multiple of 10 litres.

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ANNEX I

3.6. Measurement

The volume of the liquid shall be measured by ascertaining the level in the dome or in the expansion chamber by one of the following methods:

a) At least two vertical reading windows, placed in the wall of the dome or expansion chamber and bearing a mark corresponding to the nominal capacity and a scale graduated in units of volume on either side of this mark. These two windows must be situated symmetrically with respect to the vertical longitudinal plane of symmetry of the tank.

b) A fixed marking device situated inside the dome or expansion chamber, visible from above either directly or through a horizontal transparent window and consisting

- either of raised marks on the inside wall situated opposite each other and perpendicular to the vertical longitudinal plane of symmetry of the tank,

- or of one or more graduations in units of volume marked on a conical funnel the axis of which coincides with the reading line, or on an inclined plate as close as possible to the reading line.

The slope of the generatrices of the funnel or of the inclined plate must not exceed 65° to the horizontal.

The mark corresponding to the nominal capacity must be within 10 millimetres of the mid-height of the dome.

c) A millimetric dipstick conforming to the requirements of section 2.7. above.

The levels are read by means of a dipstrick along the reading line, which must pass substantially through the locus of the centres of gravity of the horizontal sections of the tank throughout the zone in which liquid levels can be read.

The zero of the dipstick must be in the reference plane "R" defined in section 1.5. above.

The reference plane "R" shall be formed by a well-defined reference surface which is so placed that there is no obstacle to the insertion of the dipstrick. This reference surface may consist :

- either of the upper faces of two non-deformable, flat, projecting parts securely fixed below the plane of the upper edge of the orifice,

- or of two smooth areas in the plane of the upper edge of the orifice,
- or by the upper edge of the dipstick guide.

The three methods described above must allow measurement of at least the volumes between 99 % and 101 % of the nominal capacity "V_n".

For methods a) and b), the interval between the axes of two consecutive lines, knewn as the "scale interval", must correspond to a volume not greater than one-thousandth of "V_n".

All parts the position of which affects measurement must be rendered irremovable by stamping the EEC sealing mark on them.

Extrenal level tubes must not be used for measuring the volume of liquid.

3.7. Inclination

For inclinations of the position of use of up to 5 % in any direction with respect to the reference position :

a) All requirements relating to complete filling and complete emptying must be fully complied with,

b) The level of the liquid must be visible and readable. The devices montioned in section 3.6. above, particularly the windows, the funnel or inclined plate and the graduated scales, must be dimensioned accordingly.

3.8. Sensitivity and range of measurement

At all points where a level can be determined by one of the methods described in section 3.6. above, the sensitivity must be not less than 2mm for one-thousandth of the volume measured.

Hence the range of measurement has to be limited by fixing in each specific case a threshold value for the height of liquid measured and a corresponding minimum volume.

Below this value the compartment must not be used as a measuring container.

3.9. Maximum permissible relative error in service

The maximum permissible relative error for any volume measured shall be set at plus or minus five-thousandths (5/1000) of that volume.

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ANNEX I

3.10. Identification plate

The identification plate referred to in section 2.9. shall state the following information :

a) The identifcation number issued by the authority which carried out the EEC gauging or EEC initial verification;

b) For each compartment :

- the nominal capacity "V_n" and the corresponding ullage;
- the average centimetric volume in the dome or expansion chamber;
- the total reference height "H" and the total capacity "V_t";

c) The name and address of the manufacturer, the year of manufacture and the serial number of the compartment;

d) The date of the last metrological inspection;

e) The EEC final initial verification mark;

f) Whether or not the discharge pipe is included; optionally, information stating or restricting the liquid or liquids to be contained; the name and address of the owner.

3.11. Gauging certificate

When this certificate is drawn up, under the conditions laid down in section 2.10, it shall include all the information appearing on the identification plate and, where appropriate, additional requirements.

3.12. Validity

The EEC initial verification marks and the gauging certificates and tables shall cease to be valid, the metrological inspection shall be carried out again and the identification plate replaced either :

a) after a period of four years, or

b) as soon as the tank has been subjected to a pressure test or has undergone deformation, repair or conversion (chassis replacement, etc..), and in particular if the total reference height "H" has varied by more than one-thousandth.

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ANNEX I

Chapter IV

Special requirements in respect of measuring container tanks mounted on rail vehicles

4.1. Construction and use

The International Union of Railways, the railway companies and the official inspection services lay down construction and filling (expansion volume) conditions for rail tankers in order to ensure transport without overloading or other risks. These conditions must be complied with, but in such a way that the use of the tank as a measuring container is not impaired.

Tests associated with the application of these requirements must be carried out before gauging.

4.2. Inclination

All the general requirements relating to complete filling and complete emptying must be fully complied with for inclinations of the unit of up to 2 % in any direction with respect to the reference position.

4.3. Outlets

Each tank or each compartment shall have a single outlet clearly situated substantially at the mid point of the lower generatrix. The discharge pipe shall have two outlets, one on each side of the vehicle, located at the extremities of a straight horizontal pipe which is perpendicular to the longitudinal axis of the wagon and is joined at its mid-point by the single vertical discharge pipe from the tank.

The volume measured shall extend down the discharge pipe as far as the first fluid-tight closure. When there are several successive fluid-tight closures, as in the case of railtankers designed for the transport of dangerous substances, the volume of the pipe between these various devices shall not form part of the measured volume. In this case, the identification plate shall bear the words: "excluding discharge pipe".

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Bottom valves situated at the inlet of the discharge pipe shall, as or general rule, be permissible but their position must be easily discernible and they are never to be considered fluid-tight.
The measured volume shall extend as far as the terminal value.

4.4. Ancillary piping

Heating pipes inside the tank are permissible provided that their presence does not impede filling, emptying or the reading of levels and is not liable to impair gauging and measuring operations. These pipes shall be mentioned on the gauging certificate, if any.
Internal compensators and hollow bodies are prohibited.

4.5. Measurement

The level of the liquid shall be established from the ullage as measured by a dipstick along the reading line the position of which shall be clearly indicated on the gauging certificate and which passes substantially through the centre of gravity of the free surface of the liquid.

A special orifice, separate from the filling orifice, may be provided for this purpose.

The reference point or plane "P" and the reference plane "R" defined in section 1.5, as well as the dipstick manufactured in accordance with section 2.7., shall bear the EEC verification marks mentioned in section 2.9.

4.6. Sensitivity

The sensitivity in the vicinity of any filling level shall be not less than two millimetres per thousandth of the volume of liquid contained. Hence the range of measurement has to be limited by fixing in each specific case a threshold value for the height of liquid measured and a corresponding minimum volume.

Below this value the tank must not be used as a measuring container.

4.7. Maximum permissible relative error in service

The maximum permissible relative error for any volume measured shall be set at plus or minus three(thousandths (3/1000) of that volume.

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ANNEX I

4.8. Identification plate

The identification plate referred to in section 2.9. shall state the following information :

a) the identification number issued by the authority which carried out the EEC gauging or EEC initial verification;

b) the registration number of the wagon;

c) for each compartment, the total reference length "H" and the total capacity "V_t";

d) the names and addresses of the owner and of the manufacturer, the serial number and the year of manufacture of the tank;

e) the date of the last metrological inspection;

f) the EEC final initial verification mark;

g) whether or not the discharge pipe is included;

optionally, information stating or restricting the liquid or liquids to be contained.

On the same plate or on a separate plate located either close to the former or inside the cover of the filling orifice and rendered irremovable by means of an EEC sealing mark, the gauging-certificate table shall be legibly and indelibly reproduced.

4.9. Gauging certificate

The competent authority of the Member State shall issue a gauging certificate drawn up in accordance with the requirements of section 2.10.; model of this certificate is attached in Annex II.

The certificate shall include all the particulars appearing on the identification plate, together with a centimentric table showing the volumes corresponding to the ullages, starting from a minimum measurable volume which is defined under the sensitivity conditions specified in section 4.6. The certificate shall remain valid for 10 years; it shall be cancelled if the tank is modified or repaired or if the chassis is replaced.

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4.10. Validity

The EEC initial verification marks, gauging certificates and gauging tables shall cease to be valid, the metrological inspection shall be carried out again and the identification plate replaced either :

a) after a period of 10 years, or

b) after the tank has been subjected to a pessure test or has undergone deformation, repair or conversion (chassis replacement, etc.), and in particular if the total reference height "H" has varied by more than one-thousandth.

ANNEX II

DIRECTIVE CONCERNING MEASURING-CONTAINER TANKS

Gauging certificate for measuring containers mounted on rail vehicles

The certificate shall indicate :

1. The issuing authority and a serial number;

2. The registration number of the wagon;

3. The names and addresses of the manufacturer and of the owner;

4. The date of issue;

5. The status and signatire of the operator, together with the seal of the authority concerned;

6. The reference point or plane "P", the reading line and the total reference height "H" in millimetres;

7. The total capacity "V_t";

8. By means of a centimetric table, the volume of liquid in cubic decimetres or litres, as a function of the ullage. This table shall be restricted to the minimum measurable volume (this shall be explicitly stated);

9. By means of a sketch, the meaning of the symbols "P", "H", "V_t".