

UoMD: Units of Measurement Directive (Directive 80/181/EEC), explained

The Units of Measurement Directive sets the SI-based legal units for every measurement or indication of quantity in the EU, binding manufacturers, importers, distributors, service providers and public bodies. It has applied since 1 October 1981; supplementary non-metric indications remain authorised without end date, and the 2018 SI base unit definitions have applied since 13 June 2020.

Reviewed 24 September 2026 by Conphora compliance team · Next review 13 March 2027 · Not legal advice

Key facts

Reference	Directive 80/181/EEC	Act type	Directive
In force	21 December 1979	Applies from	1 October 1981
Amended by	Council Directive 85/1/EEC, Council Directive 89/617/EEC, Directive 1999/103/EC, Directive 2009/3/EC, Commission Directive (EU) 2019/1258	Enforced by	The directive contains no enforcement or penalty article of its own: Member States adopt and apply the transposing laws under Article 7 and enforce them through their own metrology and market surveillance authorities.
CELEX	31980L0181		

Key dates

20 December 1979	Council Directive 80/181/EEC adopted, replacing Directive 71/354/EEC and published in OJ L 39 of 15 February 1980	title and publication reference; document information
21 December 1979	Entry into force and date of effect of the directive as recorded on EUR-Lex	dates, entry into force and date of effect
30 June 1981	Deadline for Member States to adopt and publish the laws, regulations and administrative provisions needed to comply, which had to be in place before 1 July 1981, and to inform the Commission	Art. 7(a)
1 October 1981	Member States apply their transposing provisions and Directive 71/354/EEC is repealed	Art. 6 and Art. 7(a)
20 December 1984	Council Directive 85/1/EEC in force: it does three things — it replaces the definition of the metre in Chapter I point 1.1 with the 1983 definition (the length of the path travelled in a vacuum by light during $1/299\,792\,458$ seconds), it adds the millimetre of mercury for blood pressure and the pressure of other	Art. 1 points 1 to 3 and Art. 2; amendment table and Annex, Chapter I, point 4, with

body fluids (1 mm Hg = 133,322 Pa) and the barn for effective cross-sectional area (1 b = 10^{-28} m²) to the specialised units of Chapter I point 4 and rewrites the note on prefixes so that they may be used with those units except the millimetre of mercury, with the multiple of 10^2 ares called a hectare, and it deletes the blood-pressure unit from Chapter II and replaces that chapter's note; Member States had to bring the measures into force on 1 July 1985

30 November 1989	Council Directive 89/617/EEC notified and in force: it replaces Article 1(b) and (c) with three points (b), (c) and (d), so the Chapter II units stay legal until a date the Member States concerned fix and the Chapter III units and the new Chapter IV units until dates no later than 31 December 1994 and 31 December 1999, extends the authorisation of supplementary indications in Article 3(2) from 31 December 1989 to 31 December 1999	Art. 1 points 1 to 5, Art. 2 and Art. 3 with the footnote on notification; amendment to
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and deletes Article 3(5), updates the ISO 2955 reference in Article 5 from 1 March 1974 to 15 May 1983, deletes the second subparagraph of Article 6, and in the Annex replaces Chapter II, deletes the fathom from Chapter III and adds Chapter IV; Member States had 24 months from notification

31 December 1994 Last date a Member State could fix for the Chapter III units, the imperial length, area, volume, mass and energy units of Article 1(c); after the date fixed by each State they stopped being legal units

Art. 1(c) and Annex, Chapter III

31 December 1999 Last date a Member State could fix for the Chapter IV units of Article 1(d), the fathom for marine navigation, the pint and fluid ounce for certain drinks in returnable containers, the gill for spirit drinks, the ounce and pound for goods sold loose in bulk and the therm for gas supply

Art. 1(d) and Annex, Chapter IV

9 February 2000 Directive 1999/103/EC, adopted on 24 January 2000 despite its 1999 number, in force on

recitals 4 and 5, Art. 1 points 1 to 3, Art. 2 and Art. 4; Art. 16, Art. 17(1), Art. 20 and

the day of
publication: it
extends the
authorisation of
supplementary
indications in Article
3(2) from 31
December 1999 to
31 December 2009,
inserts Article 6a on
the further
examination of
implementation and
in particular of
supplementary
indications under
the committee
procedure of Article
18 of Directive
71/316/EEC (since
Directive
2009/34/EC, its
Article 17(1) and
the committee of its
Article 16), and
amends the Annex
in Chapter I point
1.1.1 (the Celsius
temperature
definition), point
1.2.1 (radian and
steradian), the
prefix table of point
1.3 and point 3 on
the electronvolt and
the unified atomic
mass unit; to be
transposed before 9
February 2001

27 May 2009

Directive 2009/3/EC recitals 1 to 3 and 10, Art. 1 and Art. 3
in force: it removes
the end date for the
Chapter II units and
for supplementary
indications, rewrites
Article 2(a) so the
directive is not
limited to specific
fields of Union
action, inserts the
Article 6b reporting

duty, deletes the
acre from Chapter II
and rewrites the SI
derived units of
Chapter I

1 January 2010	Member States apply their measures transposing Directive 2009/3/EC, after a transposition deadline of 31 December 2009	Art. 2(1)
20 May 2019	The new definitions of the SI base units adopted at the 26th meeting of the General Conference on Weights and Measures in 2018 become effective at international level, based on fixed numerical values of seven defining constants	recitals 3 and 4
13 August 2019	Commission Directive (EU) 2019/1258 in force: it replaces Chapter I section 1.1 of the Annex with the constant-based definitions of the seven SI base units and the degree Celsius	Art. 1, Art. 3 and Annex
31 December 2019	Deadline for the Commission report to the European Parliament and the Council on market developments relating to the directive and its implementation, with proposals where appropriate	Art. 6b

13 May 2020	Deadline for Member States to adopt and publish the provisions transposing Commission Directive (EU) 2019/1258	Art. 2(1)
13 June 2020	Member States apply the provisions transposing Commission Directive (EU) 2019/1258; this is the date of the consolidated version of the directive in force today	Art. 2(1); consolidated version header
14 May 2021	Danish executive order nr. 866 of 11 May 2021 on the international system of units, SI, and other legal units in force, replacing order nr. 618 of 13 May 2020; it repeats the obligation to use the prescribed units, the transport exception, the supplementary indication rules and a fine for breaches	§ 1 to § 6 and the footnote listing the directives implemented
16 July 2021	Regulation (EU) 2019/1020 applies: Directive 80/181/EEC is point 6 of its Annex I, so national market surveillance authorities exercise the regulation's investigation and enforcement powers for it; the directive is in neither the Article	Art. 2(1), Art. 4(5), Art. 14, Art. 16, Art. 41, Art. 44, Annex I point 6 and Annex II

4(5) list nor Annex
II

1 January 2026	Sikkerhedsstyrelsen becomes the department Markedsovervågning of Erhvervsstyrelsen and continues the same tasks, including legal metrology	version history of 2 December 2025
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Obligations by role

Manufacturer or packer that sets the quantity indications

- Express every quantity on the product, its packaging, its label, its instructions and its technical documentation in a legal unit of measurement, that is a unit of Chapter I of the Annex, unless one of the restricted chapters or the transport exception applies to that specific case. *Art. 1 and Art. 2(a)*
- Build the figures on the seven SI base units, the second, metre, kilogram, ampere, kelvin, mole and candela, and on the units derived from them: the SI derived units with special names from the radian to the katal, the degree Celsius, the decimal multiples formed with the twenty prefixes from yotta to yocto, and the specially authorised names litre, tonne and bar. *Annex, Chapter I, points 1.1 to 1.4*
- Use the units permitted in specialised fields only inside those fields: the dioptré for the vergency of optical systems, the metric carat for the mass of precious stones, the are for the area of farmland and building land, the tex for the mass per unit length of textile yarns and threads, the millimetre of mercury for blood pressure and the pressure of other body fluids, and the barn for effective cross-sectional area. *Annex, Chapter I, point 4*
- Where a non-metric figure is kept for an export market or a familiar audience, present it as a supplementary indication next to the Chapter I figure, let the Chapter I indication predominate and print the other indication in characters no larger than those of the corresponding Chapter I indication. *Art. 3(1), 3(2) and 3(4)*
- Follow the composition rules of the Annex: form the multiples and submultiples of the unit of mass by attaching prefixes to the word gram and their symbols to the symbol g, attach a prefix to the numerator, the denominator or both parts of a unit written as a fraction, and never use compound prefixes formed by juxtaposing several prefixes. *Annex, Chapter I, point 1.3*
- Where the indication appears on the display or indicator of a measuring instrument, check whether the Member State has required indications of quantity in a single legal unit; in Denmark the SI order makes clear which SI unit is meant and offers the writing rules of its Annex 2, and legal units may be required for the indicators of measuring instruments even for old equipment covered by the Article 4 exception. *Art. 3(3) and Art. 4; § 3, stk. 4, and bilag 2*
- Treat the unit question as separate from the declaration question: the sector rules decide whether a net quantity or a dimension has to be declared and in what form, this directive decides only the unit the figure is expressed in, so read the two together rather than in isolation. *Art. 1 and Art. 2(a)*

Importer bringing goods into the Union

- Before placing goods on the Union market, check every quantity indication that travels with them, on the product, the packaging, the label, the manual and the accompanying documents, and correct any figure that is not expressed in a legal unit. Art. 1 and Art. 2(a)
- For goods prepared for a third-country market, do not simply keep the non-metric figure: either replace it with a Chapter I figure or add the Chapter I figure and make it the predominant one, with the non-metric characters no larger. Art. 3(1) and 3(4)
- Do not rely on the Article 4 grandfathering unless it actually fits: it covers products and equipment already on the market or in service when the directive was adopted, and components and parts needed to supplement or replace parts of those products, and in Denmark is written as goods and equipment already placed on the market or taken into use before 1 July 1977. Art. 4; § 4
- Do not treat the Chapter II units as generally available: the mile, yard, foot, inch, pint and troy ounce are legal units only in the Member States that authorised them on 21 April 1973, and the Danish order reproduces Chapter I only. Art. 1(b) and Annex, Chapter II; bilag 1
- Cooperate with the market surveillance authority: since 16 July 2021 the directive is point 6 of Annex I to Regulation (EU) 2019/1020, so the authority can require information and documents, carry out checks, require corrective action, prevent the product from being made available and have it withdrawn, recalled or destroyed. Art. 2(1), Art. 14, Art. 16 and Annex I point 6

Distributor, retailer or online seller

- Make sure that shelf-edge labels, catalogues, online listings and marketing copy aimed at end users in the Union give sizes, weights, volumes, capacities and other quantities in legal units; the obligation follows the indication of quantity, not the surface it appears on. Art. 1 and Art. 2(a); recital 2 and Art. 1(2)
- When you relabel, repack or split a product, carry the legal unit across to the new label and keep any non-metric figure subordinate to it, in characters no larger than the corresponding Chapter I indication. Art. 3(1) and 3(4)
- Do not restate a supplier's quantity in a unit of your own choosing, and do not convert a metric figure into a non-metric one as the only indication; a non-metric figure standing alone is not a supplementary indication. Art. 3(1) and 3(2)
- Where a Danish customer is buying on the basis of a measurement, remember that the control authority can order the owner of the measuring instrument to bring it into conformity and can forbid its use where payment is based on the measurement. § 16 a
- Keep an eye on whether the goods are destined for a Member State where the Chapter II units are still legal; outside those States the mile, pint and troy ounce may appear only as supplementary indications. Art. 1(b) and Art. 3; recital 1

Public administration, health and safety bodies, laboratories and service providers

- Public administration, health and safety bodies, laboratories and service providers use legal units for the instruments they use, the measurements they make and the quantities they state; since Directive 2009/3/EC rewrote Article 2(a) the obligation is not limited to any specific field of Union action.
recital 2 and Art. 1(2); Art. 2(a)
- Medical and clinical use follows the same Annex: the millimetre of mercury remains legal for blood pressure and the pressure of other body fluids, and it is the one specialised unit that may not be combined with a prefix. Annex, Chapter I, point 4 and its note
- Laboratories may use the units whose values in SI are obtained experimentally, the electronvolt for energy and the unified atomic mass unit for mass, with the prefixes of point 1.3, and the katal for catalytic activity, which the General Conference on Weights and Measures adopted in 1999 to give medicine and biochemistry one harmonised unit. Annex, Chapter I, points 1.2.3 and 3; recital 8
- In air and sea transport and rail traffic, units other than the compulsory ones may be used where they are laid down in international conventions or agreements binding the Union or the Member States; the exception is limited to those units and does not open the door to non-metric labelling generally.
Art. 2(b); § 2
- Where an authorised representative or another party answers for a product in the Union, note that Directive 80/181/EEC is not in the Article 4(5) list of Regulation (EU) 2019/1020, so that regulation's duty to have an economic operator established in the Union does not follow from this directive; it may still follow from another act that applies to the same product. Art. 4(1) and Art. 4(5)

Penalties

The directive itself lays down no penalties and no enforcement procedure. Article 7 requires Member States to adopt, publish and apply the laws, regulations and administrative provisions needed to comply with it, and to inform the Commission of them and of any draft measures in the field, so the sanction sits in national law. Since 16 July 2021 the surveillance side rests on Regulation (EU) 2019/1020: the directive is point 6 of its Annex I, which makes it Union harmonisation legislation for the purposes of the regulation, so market surveillance authorities hold the Article 14 powers to require documents and information, carry out checks and enter premises, and the Article 16 measures to require corrective action, to prevent the product being made available, to withdraw, recall or destroy it, to set prior conditions for making it available and to warn end users. The directive is not listed in Annex II to that regulation, so the Article 41 duty to lay down penalties for infringements does not reach it through the regulation, and it is not in the Article 4(5) list either. In Denmark, executive order nr. 866 of 11 May 2021 punishes with a fine a breach of the duty to use the prescribed units and of the predominance rule, and fines anyone who intentionally or through gross negligence states an SI unit in a way designed to mislead, with criminal liability for companies under chapter 5 of the criminal code; the order is issued under section 18(1) and section 23(3) of act nr. 1518 of 18 December 2018 on business promotion, whose section 18(1) then required the minister to make rules on metrology, including which units of measurement apply. That power has since moved: act nr. 782 of 4 May 2021 transferred metrology to the product act with effect from 1 July 2021, where the minister's rule-making power for units of measurement is now section 8a and units of measurement are product area nr. 19 of section 2(1). Section 7(1) of act nr. 782/2021 keeps rules made under chapter 8 of the business promotion act in force until they are repealed or replaced by rules made under the product act, which is why order nr. 866/2021 — issued seven weeks before the transfer took effect — still stands, and why section 18 of the current consolidation of the business promotion act (LBK nr. 230 of 29 February 2024) no longer contains a metrology power at all. So the two instruments are not two parallel regimes but a transition: the order is the substantive rule, the product act supplies the control authority, the powers and the penalties. The product act names Erhvervsstyrelsen as the control authority and lets it warn users, stop misleading marketing, order the fault remedied, stop sales, order withdrawal, recall or destruction, prohibit placing on the market, making available, supply or putting into use, and order the owner of an instrument used for payment-based measurement to bring it into conformity or forbid its use; breaches of those decisions are fined and, in aggravating circumstances, punished with imprisonment of up to 2 years. Since January 2026 Sikkerhedsstyrelsen is the department Markedsovervågning of Erhvervsstyrelsen.

Art. 7; Art. 2(1), Art. 4(5), Art. 14, Art. 16, Art. 41, Annex I point 6 and Annex II; preamble and § 5; § 18, stk. 1, and § 23, stk. 3; § 6, s

Checklist

- 1. List every place a measured quantity appears for a given product: net contents, dimensions, capacity, dosage, area, mass per length, pressure, energy, on the pack, on the label, in the manual, in the spec sheet, on the shelf edge and in the online listing.
- 2. Make the governing figure a Chapter I unit in each of those places, built on the seven SI base units and the units derived from them, and use the specialised units such as the dioptre, metric carat, are, tex, millimetre of mercury and barn only within their own field (Annex, Chapter I, points 1 and 4).
- 3. Where a non-metric figure is kept, print it as a supplementary indication beside the metric one, keep the metric indication predominant and keep the non-metric characters no larger than the corresponding metric ones (Article 3(1) and 3(4)).
- 4. Check the composition rules: mass multiples are formed on the word gram and the symbol g, a prefix may sit in the numerator or the denominator of a fraction unit or in both, and compound prefixes are not allowed (Annex, Chapter I, point 1.3).
- 5. Treat the mile, yard, foot, inch, pint and troy ounce as legal units only in the Member States that authorised them on 21 April 1973, and the acre, gallon, quart, gill, fluid ounce, pound, fathom and therm as no longer legal anywhere, since the Article 1(c) and 1(d) windows closed at the end of 1994 and 1999.
- 6. Confirm whether the Member State you sell into has required measuring instruments to carry a single legal unit under Article 3(3); Denmark has not, and its SI order instead asks that the SI unit be stated clearly and offers writing rules for symbols and compound units.
- 7. Keep the air, sea and rail exception to what it says: units other than the compulsory ones are allowed there only where an international convention or agreement binding the Union or the Member States lays them down (Article 2(b)).
- 8. Do not stretch the Article 4 grandfathering: it covers products and equipment already on the market or in service when the directive was adopted and the parts that supplement or replace parts of them, with 1 July 1977 as the Danish cut-off, and legal units may still be required for the indicators of measuring instruments.
- 9. Check that the technical documentation, drawings and calculations that support a declaration of conformity under another act use the same legal units as the pack, since the obligation also covers measurements made and instruments used.
- 10. Read this directive together with the sector rules that decide whether and how a quantity must be declared; those rules set the declaration, this one sets the unit.

Sources

1. Consolidated text of Council Directive 80/181/EEC on units of measurement, version of 13 June 2020 (EUR-Lex) — <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:01980L0181-20200613>
2. Council Directive 80/181/EEC as published in OJ L 39, 15 February 1980 (EUR-Lex) — <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:31980L0181>
3. Document information, dates, corrigenda and amending acts for CELEX 31980L0181 (EUR-Lex) — <https://eur-lex.europa.eu/legal-content/EN/ALL/?uri=CELEX:31980L0181>
4. Directive 2009/3/EC amending Directive 80/181/EEC, which made supplementary indications and the Chapter II units open-ended (EUR-Lex) — <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:32009L0003>
5. Commission Directive (EU) 2019/1258 adapting the Annex to the 2018 definitions of the SI base units (EUR-Lex) — <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:32019L1258>
6. Directive 2009/34/EC on common provisions for measuring instruments and methods of metrological control, which replaced Directive 71/316/EEC and supplies the committee referred to in Article 6a (EUR-Lex) — <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:32009L0034>
7. Regulation (EU) 2019/1020 on market surveillance and compliance of products, whose Annex I lists the directive as point 6 (EUR-Lex) — <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:32019R1020>
8. Units of measurement in the EU (European Commission, DG GROW) — https://single-market-economy.ec.europa.eu/single-market/goods/building-blocks/legal-metrology/units-measurement-eu_en
9. Legal metrology (European Commission, DG GROW) — https://single-market-economy.ec.europa.eu/single-market/goods/building-blocks/legal-metrology_en
10. Bekendtgørelse nr. 866 af 11. maj 2021 om det internationale enhedssystem, SI, og andre lovlige enheder (Retsinformation) — <https://www.retsinformation.dk/eli/lta/2021/866>
11. Bekendtgørelse nr. 618 af 13. maj 2020 om det internationale enhedssystem, SI, og andre lovlige enheder, repealed on 14 May 2021 (Retsinformation) — <https://www.retsinformation.dk/eli/lta/2020/618>
12. Bekendtgørelse af lov om produkter og markedsovervågning, LBK nr. 22 af 8. januar 2026 (Retsinformation) — <https://www.retsinformation.dk/eli/lta/2026/22>
13. Regler og bekendtgørelser for måling og vægt (Sikkerhedsstyrelsen) — <https://www.sik.dk/erhverv/produkter/maaling-og-vaegt-metrologi/love-og-regler-0/regler-og-bekendtgørelser-maaling-og-vaegt>
14. Sikkerhedsstyrelsen, en del af Erhvervsstyrelsen from January 2026 (Erhvervsstyrelsen) — <https://erhvervsstyrelsen.dk/sikkerhedsstyrelsen-en-del-af-erhvervsstyrelsen>

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