LIGHTINGEUROPE
THE VOICE OF THE LIGHTING INDUSTRY

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Frequently Asked Questions on Mercury Related Legislation for Lamps

(EU RoHS Directive, EU Mercury Regulation and UN Minamata Convention)

Contents

Introduction

As lighting industry, we support the regulatory effort to reduce the amount of hazardous substances in products. Our companies continuously work on the development of alternative lamps that do not contain mercury when this is technically and economically possible. At this stage of development and state of technology, it is not possible to remove mercury from all the different lamps for all kinds of applications and still maintain energy efficient and affordable lamps.

The use of mercury, a hazardous substance, in lamps is regulated by multiple pieces of legislation, including:

- the EU RoHS Directive 2011/65/EU for electrical and electronic equipment (EEE), as well as similar laws in a growing number of countries and regions;
- the UN Minamata and the corresponding implementing rules like the EU Mercury regulation EU/2017/852 and related regulations in other regions and countries worldwide.

At the same time, these same lamps are also regulated by the 'EU Regulation EU/2019/2020 laying down eco-design requirements for light sources and separate control gears' and other policies in different countries focusing on energy efficiency. The EU Ecodesign rules have recently been revised, with most new requirements applying as of 1st September 2021.

The present FAQ presents LightingEurope's views on how to jointly interpret and apply these different pieces of legislation to lamps, including what is allowed and what is not allowed under each law and clarifying any possible confusion generated by the use of differing terminology in each law.

1. Questions relating to all regulations

1.1 General lighting versus Special Purposes

The EU RoHS Directive separates general lighting applications from special purposes ones depending on the application the lamp is used in. It lists products that are exempted and application areas which are out of scope of the Directive, e.g. products used for military purposes, for use in space, transport vehicles, large machinery etc.

Regulators acknowledge that more than 90% of all lighting equipment is used for general illumination of indoor and outdoor spaces, providing light to humans to enhance visibility in an area, e.g., to enable them to do their work, to travel or to relax. Because these general lighting applications are most relevant for energy and mercury use in the market, these lamps and drivers are regulated, as several feasible alternatives are available and affordable.

Products for Special Purposes that perform a special function in the application, like the generation of UV light or to grow plants, have less impact on the environment due to their limited quantities in the market. In addition, so far there is a lack of available substitutes in many applications.

Lamp producers in most cases do not sell their products to end users, so the product application and use is determined by equipment designers, specifiers, installers and users.

The EU Ecodesign Regulation 2019/2020 also distinguishes between products that are out of scope, applications that are out of scope (military, explosive atmospheres, emergency applications), and also recognises products for special purposes.

These differences in definitions often cause confusion and LightingEurope sees the need for some clarification and alignment.

1. **General lighting:**

General lighting is substantially uniform lighting of an area without provision for special local requirements.
General lighting lamps are primarily marketed or commercialized for visible light applications. See Annex 1 for detailed information.

2. **Special purpose:**

Special purposes are applications where specific requirements apply. Lamps for special purposes applications have documented and communicated application-specific features. These lamps have a specific design, specification or materials or are tested and approved for these specific applications. See Annex 1 for detailed information.

1.2 Fluorescent lamps

This is a discharge lamp of the low-pressure mercury type, in which most of the light is emitted by one or several layers of phosphors excited by the ultraviolet radiation from the discharge (according to standard EN 60901 ed.2.2).

Fluorescent lamps (FL - lamp types) exist already from the 1930s. They have been designed as a modular component and are an exchangeable separate component of an EEE luminaire system. They need an external ballast or electronic driver and luminaire to be connected to the mains voltage. Their efficiency has been increased during the years as a result of the use of tri-band fluorescent materials (sometimes named Tri-band “phosphors” due to the old halo phosphate fluorescent materials based on phosphor compounds).

Some commonly used terms are:

- LFL – linear fluorescent lamps which are double capped.
- NLFL – Non-linear fluorescent lamps in various shapes (e.g. circular, square, U-bend etc.) and might be double-capped or single-capped.
- CFL – compact fluorescents lamps have a single cap for operation on external circuits with either an internal or an external ballast.

1.3. Compact Fluorescent Lamps (UN-Minamata & Mercury regulation 2017/852/EU):

The CFL lamp family is part of the family of single-capped fluorescent lamps developed according to standard EN60901 for many different applications, light distributions, light qualities, wattages, shapes and dimensions.

Mercury requirements for CFL lamps are included in Directive RoHS 2011/65/EU, Mercury Regulation 2017/852/EU and the UN Minamata Convention.

The CFL lamp family can be split into 2 sub lamp families: CFL.i (integrated electronics) and CFL.ni (non-integrated external electronics):

a. CFL.i lamps are designed with an integrated electronic driver inside the lamp bulb housing and can be connected directly to the AC mains electricity supply by use of a

generic CFL.i lamp cap, including those used for incandescent lamps (e.g., E27, E14, B22, GU10, see IEC/EN 60061-1 figure below)).

b. CFL.ni lamps are designed as a modular component, and also feature the characteristics of consumables (finite lifetime and regularly replaced) or replacement parts (lamps in luminaires must be replaced when they cease functioning). They need an external ballast or electronic driver and luminaire to be connected to the mains voltage. The luminaire cannot function without this part. CFL.ni lamps are connected by specific designed lamp caps (non-mains voltage) to an electronic driver, which is located inside or outside the luminaire. The performance and safety of a CFL.ni lamp and luminaire can only be guaranteed when a certain lamp type is connected to a the specified electronic driver type, suitable for this specific lamp type. Therefore, many different specific lamp caps and connectors have been designed to ensure the right performance, power and safety requirements and related standards, when the lamp is exchanged by professional installers or by end-users. The different lamp bases designed for different ni-operations are shown in Figure 1 below (see non-AC supply operations).

CFL lamps are designed as energy efficient lighting products for many different applications, light distributions, light qualities, wattages and shapes, as an alternative for incandescent lamps (CFL.i) or as compact alternatives for Linear fluorescent lamps (CFL.ni), including for example:

- for general lighting purposes, consisting of tube diameters ≤ 17 mm (e.g. T4, T5) and having several different shapes (e.g. ball-, spiral- and stick-shape) and are covered by RoHS exemptions 1a, 1b, 1c, 1d and 1g;
- special purposes lamps are included in the scope of RoHS exemption 1f. See examples of special purpose applications listed in Appendix 1 of this document.

Circular- or square-shaped lamps with a tube diameter ≤ 17 mm and > 17 mm (as covered by RoHS exemptions 1e and 2b3) are not considered compact fluorescent lamps (CFL). They are regarded as single capped (non-linear) fluorescent lamps according to standard EN60901.

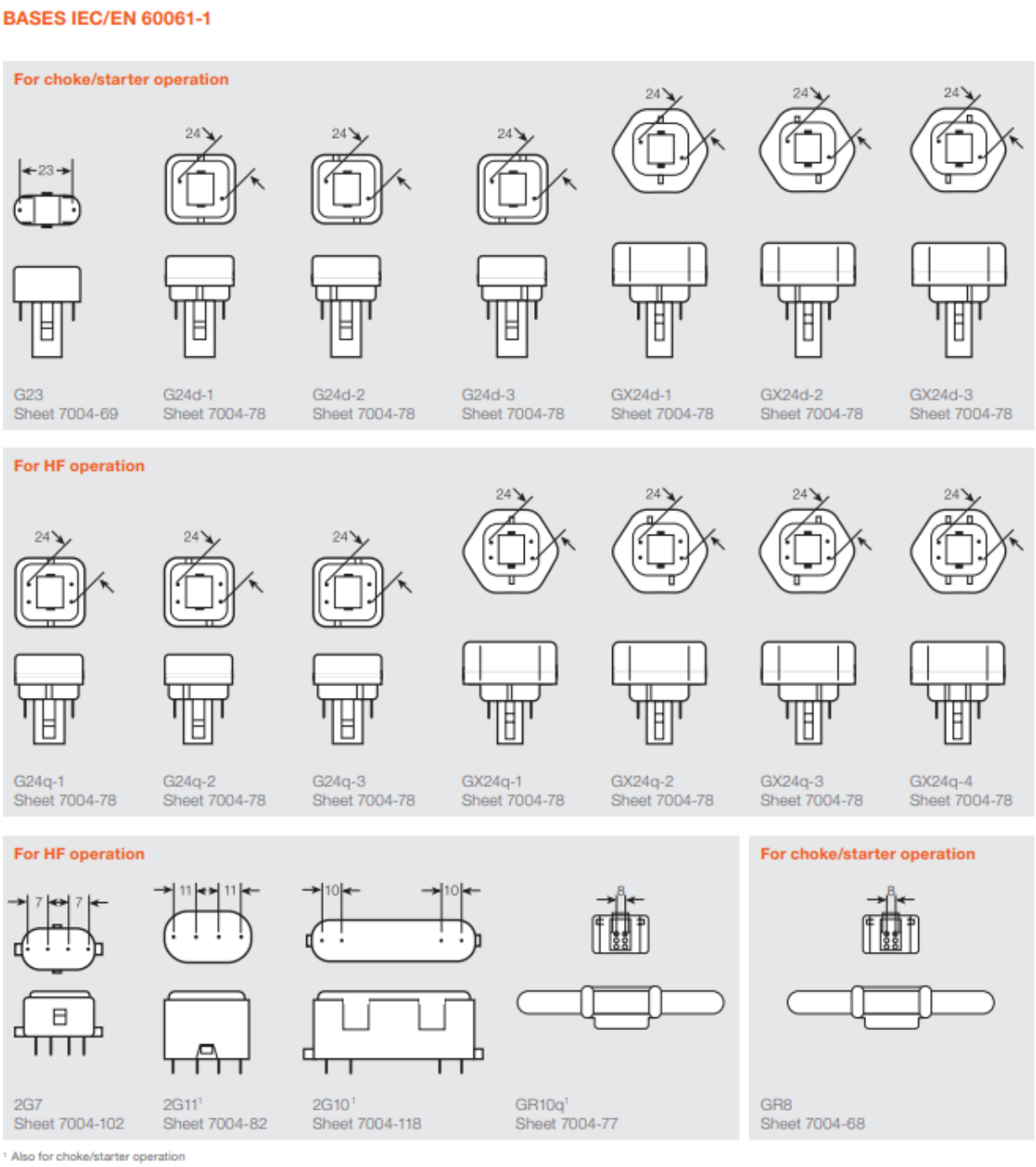

Figure 1: Various lamp caps used for different fluorescent lamp types

Source: Ledvance; [Lighting Program 09/2018]

2. Questions regarding the EU implementation of UN Minamata

Introduction

Certain lamps that are in the scope of the United Nations Environmental Program (UNEP) Minamata Convention on Mercury are no longer allowed to be manufactured, imported and exported after 2020.

In summary:

- The Convention introduces mercury limits for certain discharge lamps on a global level. This does not result in a ban on fluorescent lamps nor a ban for those lamps that are not mentioned in the Annex to the Convention.
- The Convention is implemented into EU law via the EU Mercury Regulation 2017/852.
- All lamps complying with the mercury limits of EU RoHS Directive 2011/65/EU, the EU Mercury Regulation 2017/852 and the EU PIC Regulation 649/2012 are not banned.
- The Convention does not prohibit special purposes lamps.
- All other lamps not mentioned below are allowed to be manufactured, imported, and exported beyond 2020.

2.1 What are Mercury Added Products under the UN Minamata Convention?

As implemented under the UN Minamata Convention in many countries and by the EU Mercury Regulation (EU) 2017/852 - art.5, art.8, Annex II:

a. "Mercury added products" (MAP's) are products or product components in which Mercury has been added for a specific function.

b. For lighting applications, the MAP's list comprises different product groups, e.g. luminaires, discharge lamps and their components.

c. These lighting product groups consist of a variety of many thousand different types of luminaires, lamps, discharge tubes, burners, components, articles, dosing units, intermediates or substances, compounds and mixtures containing Mercury, Mercury compounds and Mercury mixtures. See paragraph 2.2.

2.2 What are Mercury Added Products allowed for manufacturing, import and export?

Under the UN Minamata Convention and the EU Mercury Regulation (EU) 2017/852 - art.5, art.8, Annex II:

a. In the Lighting industry many Mercury Added Products and product components containing Mercury, Mercury compounds or Mercury mixtures, are used for the processing or manufacturing of intermediates, compounds, components or products for lighting applications.

b. The total scope of allowed Lighting MAP's (e.g. luminaires, discharge lamps, discharge tubes, components, articles, dosing units, intermediates or substances, compounds and mixtures) comprises many thousands of different types with specific MAP names which are used by different lighting brands and their suppliers.[1]

2.3 What is the inventory list of Mercury Added Products allowed for manufacturing, import and export?

According to the EU Mercury Regulation (EU) 2017/852 - art.8.1:

a. LightingEurope and the ZVEI summarized with the EU Commission an inventory list of MAP's existing before 1 Jan 2018 that are allowed for the Lighting industry, which is related to the MAP list of the UN Minamata Convention (Annex A) and the related EU Mercury regulation (Annex II).[2]

b. The EU MAP list includes all lighting discharge lamps and their components used for the production of discharge lamps (e.g. discharge tubes, burners, dosing units), which are all allowed for manufacturing, import and export.[3]

c. Mercury, Mercury compounds, Mercury mixtures used for the manufacturing of components or products for lighting applications are also allowed.

2.4 What are new Mercury Added Products?

According to the EU Mercury Regulation (EU) 2017/852 - art.8:

a. New Mercury Added Products are products which are being developed for new applications, not known before 1 Jan 2018. Therefore, the import, export and manufacturing of all Mercury Added Products and product components that are listed in the inventory MAP list for lighting applications is allowed after 1 Jan 2018 and shall not be considered as New Mercury Added Products. See also paragraph 2.2.

b. The total scope of allowed Lighting MAP's (e.g., luminaires, discharge lamps, discharge tubes, components, articles, dosing units, intermediates or substances, compounds and mixtures) comprises many thousands of different types with specific product names which are used by different Lighting brands and their suppliers.

2.5 Which Mercury Added Products are allowed?

According to art. 2.6 of the EU Mercury Regulation (EU) 2017/852 – Annex II, it is allowed to:

a. export, import and manufacture MAP products/components which are excluded from the prohibited list:

- products containing Mercury below the specified threshold levels as listed in the Annex II of this Regulation
- products, components etc. not listed in Annex II (see excerpt below)

[1] See for more website information: EU Mercury Added Products inventory: http://ec.europa.eu/environment/chemicals/mercury/regulation_en.htm and the EU MAP list publication
[2] See 1 above.
[3] See EU-MAP list, Part A-IV, page 8.

- products for civil protection and military uses
- products for research
- products for calibration of instrumentation, or for use as a reference standard
- switches and relays, cold cathode fluorescent lamps and external electrode fluorescent lamps (CCFLs and EEFLs) for electronic displays and measuring devices, when they are used to replace a component of larger equipment and provided that no feasible mercury-free alternative for that component is available, in accordance with Directives 2000/53/EC and 2011/65/EU of the European Parliament and of the Council.

b. The export, import and manufacturing in the Union of the limited list of mercury-added products/components set out in Annex II shall be prohibited as from the dates set out therein, referring to Article 5 and listed in Annex II (see excerpt below): […]

- Compact fluorescent lamps (CFLs) for general lighting purposes: (a) CFL.i ≤ 30 watts with a mercury content exceeding 2,5 mg per lamp burner; (b) CFL.ni ≤ 30 watts with a mercury content exceeding 3,5 mg per lamp burner. Per 31.12.2018
- The following linear fluorescent lamps (LFLs) for general lighting purposes: (a) Triband phosphor < 60 watts with a mercury content exceeding 5 mg per lamp; (b) Halophosphate phosphor ≤ 40 watts with a mercury content exceeding 10 mg per lamp. Per 31.12.2018
- High pressure mercury vapor lamps (HPMVs) for general lighting purposes. Per 31.12.2018
- The following mercury-added cold cathode fluorescent lamps and external electrode fluorescent lamps (CCFLs and EEFLs) for electronic displays: (a) short length (≤ 500 mm) with mercury content exceeding 3,5 mg per lamp; (b) medium length (> 500 mm and ≤ 1 500 mm) with mercury content exceeding 5 mg per lamp; (c) long length (> 1 500 mm) with mercury content exceeding 13 mg per lamp. Per 31.12.2018

Please note that at the Conference of the Parties (COP4.2) to the UN Minamata Convention in March 2022, it was decided to add two more lamp types to the list of phased-out products in Annex A of the UN Minamata Convention. An amendment to Annex II of the EU Mercury Regulation is pending:

- Compact fluorescent lamps with an integral ballast (CFL.i) for general lighting purposes that are ≤ 30 watts with a mercury content exceeding 5 mg per lamp. 31.12.2025
- Cold cathode fluorescent lamps (CCFL) and external electrode fluorescent lamps (EEFL) of all lengths for electronic displays, not included in the listing directly above. 31.12.2025

2.6 Is the import and export of dosing units allowed under the UN Minamata Convention or country regulations like the EU Mercury Regulation?

Dosing units are Mercury containing components. Dosing units are specially designed to be used during the production process of specific discharge lamps to dose a specific amount of Mercury, Mercury compound or Mercury mixture into the discharge tube of a lamp.

Under EU REACH[4] these components are identified as "Articles".

An article is defined in REACH as ‘an object which during production is given a special shape, surface or design which determines its function to a greater degree than does its chemical composition’.

There are no import and export restrictions of dosing units for lighting products as these units are Mercury Added Products under the UN Minamata Convention (Art. 4, Annex A) and the EU Mercury Regulation (Art.5 - Annex II) and no restrictions are listed for dosing units in the related Annexes.

See also the EU inventory of allowed MAP inventory list published 2nd May 2019 chapter IV, page 8: ”Gas discharge lamps that use an electric arc through vaporized mercury to produce light, including e.g.: “[…] Components used for the production of discharge lamps and its components (e.g. discharge tubes, burners, dosing units) […]”[5]

2.7 What are EU Mercury Added Products existing before 1 Jan 2018 which are allowed to be placed on the market after Jan 2018? (see EU Mercury Regulation (EU) 2017/852 - art.8)?

The list of existing Mercury Added Products placed on the market before 1 Jan 2018 consists of many thousands of different luminaires, equipment, lamps and their components (e.g. dosing units like amalgam pellets/strips/balls and Mercury dosing capsules) which are allowed to be placed on the market after Jan 2018. See the EU inventory of allowed MAP list revision published 2nd May 2019, Part A-IV, page 8: “Gas discharge lamps that use an electric arc through vaporized mercury to produce light, including e.g.: “[…] Components used for the production of discharge lamps and its components (e.g. discharge tubes, burners, dosing units) […]”[6]

New MAPs are allowed to be placed on the market in case the Mercury content is lower than the old version. The EU Mercury regulation states that: “New Mercury Added Products are allowed in case (a) equipment which is necessary for the protection of the essential interests of the security of Member States, including arms, munitions and war material intended for specifically military purposes; (b) equipment designed to be sent into space; (c) technical improvements made to or the redesign of mercury-added products that were being manufactured (in or outside EU) prior to 1 January 2018 provided that such improvements or redesign lead to less mercury being used in those products."

2.8 What are EU manufacturing processes existing before 1 Jan 2018, which are allowed to be used after January 2018? (see EU Mercury Regulation (EU) 2017/852 - art.8)?

The list of existing manufacturing processes used before 1 Jan 2018 comprises all manufacturing processes for making substances, compounds, mixtures, components, dosing units, products or any other product, equipment or component for all Lighting applications, such as general lighting and special purpose applications.

[4] Regulation (EC) No 1907/2006 of the European Parliament and of the Council of 18 December 2006 concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH).
[5] See 3 above.
[6] See 3 above.

These processes are not considered to be new manufacturing processes as they existed already before 1 Jan 2018 and are therefore allowed to be used after January 2018.

Manufacturing processes are also allowed, when these processes are for the manufacture of MAPs or use MAPs that are not prohibited by the (EU) 2017/852 -Annex II list.

2.9 Is the manufacturing of intermediates, mixtures, dosing units, components, discharge tubes or discharge lamps allowed under UN Minamata (Art.5) or the EU Mercury Regulation?

All manufacturing processes that manufacture MAPs that are not prohibited by the (EU) 2017/852 - Annex II list, are allowed in the European Union.

All these processes shall not be considered as new manufacturing processes as they already existed before 1 Jan 2018.

All lighting manufacturing processes are allowed e.g. for making Mercury compounds or intermediates, Mercury mixtures, dosing units (e.g. amalgam pellets/strips/balls and Mercury dosing capsules), or discharge lamps or any other product or product component for lighting applications, like general lighting purpose or special purposes. Restrictions for manufacturing processes only exist for other application areas as listed in UN Minamata (Art.5, Annex B) or EU Regulation (EU) 2017/852 (Art.7, Annex III)

2.10 Is the import of Mercury, Mercury compounds and Mercury mixtures allowed under UN Minamata Convention and listed in country regulations, e.g. EU Mercury Regulation (EU) 2017/852 - art.4 and Annex I?

There are no restrictions for the import and export of Mercury, Mercury compounds and mixtures if the concentration of Mercury is < 95% by weight.

The import of Mercury, Mercury compounds and Mercury mixtures with a Mercury concentration of at least 95% by weight is allowed for lighting products under certain conditions. E.g., in case of an exemption via a written consent (UN Minamata Art. 3.6).

2.11 Is the export of Mercury, Mercury compounds and Mercury mixtures allowed under the UN Minamata Convention?

- The export of Mercury, Mercury compounds and Mercury mixtures is allowed for allowed use in case of an exemption via a written consent (UN Minamata Art 3.6)
- Each Party to the UN Convention shall not allow the export of mercury except:
    - To a Party that has provided the exporting Party with its written consent, and only for the purpose of: (i) A use allowed to the importing Party under this Convention; or (ii) Environmentally sound interim storage as set out in Article 10; or
    - To a non-Party that has provided the exporting Party with its written consent, including certification demonstrating that: (i) The non-Party has measures in place to ensure the protection of human health and the environment and to ensure its compliance with the provisions of Articles 10 and 11; and (ii) Such mercury will be

used only for a use allowed to a Party under this Convention or for environmentally sound interim storage as set out in Article 10.

- An exporting Party may rely on a general notification to the Secretariat by the importing Party or non-Party as a written consent.
- Such general notification shall set out any terms and conditions under which the importing Party or non-Party provides its consent. The notification may be revoked at any time by that Party or non-Party. The UN Minamata Convention Secretariat shall keep a public register of all such notifications.
- Each Party shall not allow the import of mercury from a non-Party to whom it will provide its written consent unless the non-Party has provided certification that the mercury is not from sources identified as not allowed under paragraph 3 or paragraph 5 (b).
- A Party may submit a general notification of consent.

2.12 Are Mercury, Mercury compounds or Mercury mixtures allowed under the UN Minamata Convention and the EU Mercury Regulation (EU) 2017/852?

Mercury, Mercury compounds or Mercury mixtures are chemical compounds without any specially designed size, shape, surface or design (as defined in UN Minamata Annex I and in REACH as substances or mixture))

These are allowed to be manufactured and used for manufacturing MAPs.

A limited number of Mercury compounds are prohibited for export as listed in (EU) 2017/852 - Annex I. However, export/import is permitted for allowed use in case of an exemption via a written consent. See export restrictions for Mercury compounds and mixtures.

Mercury and Mercury compounds is described in the UN Minamata convention (art.3) as following:

- “Mercury” includes mixtures of mercury with other substances, including alloys of mercury, with a mercury concentration of at least 95 per cent by weight; and
- “Mercury compounds” means mercury (I) chloride (known also as calomel), mercury (II) oxide, mercury (II) sulphate, mercury (II) nitrate, cinnabar and mercury sulfide."

2.13 Which export restrictions for Mercury compounds or mixtures are valid for export outside the EU from 1 Jan 2018 onwards, according (EU) 2017/852?

In the EU Mercury Regulation 2017/852 - art.3, Mercury compounds or mixtures as listed in Annex I are prohibited for export outside the EU from 1 January 2018:

..1.1. Mercury (I) chloride (Hg_2Cl_2, CAS RN 10112-91-1)

..1.2. Mercury (II) oxide (HgO, CAS RN 21908-53-2)

..1.3. Cinnabar ore

..1.4. Mercury sulfide (HgS, CAS RN 1344-48-5) Mercury compounds prohibited for export from 1 January 2020:

..1.5. Mercury (II) sulphate (HgSO4, CAS RN 7783-35-9)

..1.6. Mercury (II) nitrate (Hg(NO3)2, CAS RN 10045-94-0) Mixtures of mercury prohibited for export and import from 1 January 2018:

..1.7. Mixtures of mercury with other substances, including alloys of mercury, with a mercury concentration of at least 95 % by weight.

Export outside the EU for the purpose of reclaiming mercury, mercury compounds and mixtures of mercury that are not subject to the prohibition laid down in paragraph 2 shall be prohibited.

Export outside the EU is allowed for the purpose of laboratory-scale research or laboratory analysis and for Mercury Added Products.

2.14 UN Minamata definitions, according to (EU) 2017/852 - art 2:

"For the purposes of this Regulation, the following definitions apply:

a. ‘mercury’ means metallic mercury (Hg, CAS RN 7439-97-6);

b. ‘mercury compound’ means any substance consisting of atoms of mercury and one or more atoms of other chemical elements that can be separated into different components only by chemical reactions;

c. ‘mixture’ means a mixture or solution composed of two or more substances;

d. ‘mercury-added product’ means a product or product component that contains mercury or a mercury compound that was intentionally added;

e. ‘mercury waste’ means metallic mercury that qualifies as waste as defined in point (1) of Article 3 of Directive 2008/98/EC;

f. ‘export’ means any of the following: (a) the permanent or temporary export of mercury, mercury compounds, mixtures of mercury and mercury-added products meeting the conditions of Article 28(2) TFEU; (b) the re-export of mercury, mercury compounds, mixtures of mercury and mercury-added products not meeting the conditions of Article 28(2) TFEU which are placed under a customs procedure other than the external Union transit procedure for movement of goods through the customs territory of the Union;

g. ‘import’ means the physical introduction into the customs territory of the Union of mercury, mercury compounds, mixtures of mercury and mercury-added products that are placed under a customs procedure other than the external Union transit procedure for movement of goods through the customs territory of the Union;

h. ‘disposal’ means disposal as defined in point (19) of Article 3 of Directive 2008/98/EC;

i. ‘primary mercury mining’ means mining in which the principal material sought is mercury;

j. ‘conversion’ means the chemical transformation of the physical state of mercury from a liquid state to mercury sulfide or a comparable chemical compound that is equally or more stable and equally or less soluble in water and that presents no greater environmental or health hazard than mercury sulfide;

k. ‘placing on the market’ means supplying or making available, whether in return for payment or free of charge, to a third party. Import shall be deemed to be placing on the market."

ANNEX 1: LightingEurope definition of General Lighting and Special Purposes, including examples of these applications

LightingEurope has compiled the following indicative list of general lighting as well as special purpose applications for the purpose of applying substance regulations. This is a non-exhaustive list which may not cover all varieties and specific niche applications developed by B2B companies regarding for example processes, curing, disinfection. It is provided for information purposes only and can be amended, deleted or updated at any time without prior notice. LightingEurope and its Members can at no time be held liable for its contents.

Definition of general lighting

General lighting is substantially uniform lighting of an area without provision for special local requirements (ref.: definition in IEC 60050(845, ed.2.0)).

General lighting lamps are primarily marketed or commercialized for visible light applications. They have standard shape, dimensions and cap. General lighting applications are those, which are not covered by the “special purposes” definition, where more specific local requirements apply.

Examples of general lighting applications are:

- Indoor lighting (e.g., offices, hospitals, elderly homes, apartment buildings, public buildings, theatres, train- and metro stations, retail shops, industry halls, etc.)
- Outdoor lighting (e.g., streets, highways, tunnels, façades, parks, sport facilities)

Definition of special purposes

Special purposes are applications where specific requirements apply. Lamps for special purposes applications have documented and communicated application-specific features. These lamps have a specific design, specification or materials or are tested and approved for these specific applications.

Examples of special purpose applications, requiring specific lighting requirements are listed below:

Applications where specific visible or non-visible radiation has importance, for example

- Medical/Therapy/In-vitro diagnostics
- Sun tanning
- Black light (e.g., for diazo printing reprography, lithography, insect traps, photochemical and curing processes)
- Black light blue (e.g., for entertainment, forensics, dermatology, banknote validation)
- Disinfection
- Pet or animal care (e.g., aquaria, terrarium, reptiles)
- Industrial, chemical- and biological processes, diagnostics and monitoring e.g., Food, Bio tech processes or monitoring equipment.

Applications which require specific specifications, for example

- Technical lighting for colour comparison

- Coloured lighting (incl. saturated colours)
- Horticultural lighting
- Lighting for birds or other animals with an eye-sensitivity-adapted spectrum
- Projection, studio lighting, show effect lighting, theatre lighting (e.g., entertainment)
- Specific colour spectrum requirements e.g., adapted to the response of film material, graphic industry
- High colour rendering index applications like food lighting, bakeries, museums, etc.
- Cold applications or potentially explosive atmospheres requiring special ignition features (e.g., external ignition strip)
- Emergency lighting luminaires using specified emergency lamps
- Traffic signals and signage
- Lighting products which have to withstand extreme physical conditions (such as vibrations or temperatures below – 20 °C or above 50 °C)
- Products incorporating lighting products, where the primary purpose is not lighting, and the product is dependent on energy input in fulfilling its primary purpose during use (such as refrigerators, sewing machines, endoscopes, blood analyzers);
- Lighting or scientific instruments and/or the calibration of instruments

Other applications

Applications which are out of scope of RoHS 2011/65/EU, for example

- Large scale fixed installations
- Large scale stationary industrial tools
- Transport means (Railway, Marine, Aircraft, Subway etc.)
- Military and Space equipment

Applications which are exempted in Ecodesign EU 2019/2020, Annex III, for example:

- Signalling applications (e.g., road, railway, marine, traffic)
- Emergency use
- Reprography (e.g., Image capture and image projection
- Potentially explosive atmosphere
- Radiological and nuclear medicine installations
- Motor vehicles, their trailers and systems,
- Civil aviation aircrafts
- Railway vehicle lighting
- Marine equipment

Contact

For further information on this topic, please contact Sophia Ehmke (sophia.ehmke@lightingeurope.org).

About LightingEurope

LightingEurope is the voice of the lighting industry, based in Brussels and representing 30 companies and national associations. Together these members account for over 1,000 European companies, a majority of which are small or medium-sized. They represent a total European workforce of over 100,000 people and an annual turnover exceeding 20 billion euro. LightingEurope is committed to promoting efficient lighting that benefits human comfort, safety and well-being, and the environment. LightingEurope advocates a positive business and regulatory environment to foster fair competition and growth for the European lighting industry. More information is available at www.lightingeurope.org.