Texte zu EU-Regelungen zur umweltgerechten Produktgestaltung und zur Energieverbrauchskennzeichnung in der Beleuchtung – Zusammenstellung [1] des Umweltbundesamtes (UBA), Deutschland

Diskussion über künftige Änderungsverordnungen
(Produktgestaltung und -information)

Diskussionstext der EU-Kommission vom 10. Juni 2020:

Stellungnahme des Herstellers Heraeus Noblelight [2]
vom 30. Juni 2020

– Produktgestaltung –

Hinweis: Bitte beachten Sie, daß der angehängte Text nur in Englisch verfaßt ist.

EN: Information on EU Lighting Regulations – Ecodesign and Energy Labelling – Compilation [1] of the Federal Environment Agency (UBA), Germany

Discussion of future amending regulations
(Product Design and Product Information)

The EU Commission's discussion text as of 10 June 2020:
Comments by the manufacturer Heraeus Noblelight [2], 30 June 2020

– Product design –

FR: Informations sur réglementations de l'UE concernant l'éclairage – l'écoconception et l'étiquetage énergétique – Compilation [1] de l'Agence Fédérale de l'Environnement (UBA), Allemagne

Discussion sur les futurs règlements modificatifs
(Conception des produits et informations relatives aux produits)

Texte de discussion de la Commission européenne du 10 juin 2020 :
Commentaires du fabricant Heraeus Noblelight [2] du 30 juin 2020
– Conception des produits –

Indication : Veuillez noter que le présent texte n'est disponible qu'en anglais.

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[1] https://www.eup-network.de/de/eup-netzwerk-deutschland/offenes-forum-eu-regelungen-beleuchtung/dokumente/texte/

[2] https://www.heraeus.com/de/hng/home_hng/home_noblelight.aspx

DE: ↓ **EN**: → page III **FR** : → page IV

Texte im Offenen Forum (**abc** = vorliegender Text)

- **Bestehende EG- und EU-Regelungen**
- **Studien der EU-Kommission**
- **Regelungsentwürfe**
  - Frühere Entwürfe
  - **Änderungsverordnungen**
    - Vorlauf: ◦ Vorab-Stellungnahmen, Hintergrundinformationen und Diskussionstexte ◦ Informelles Interessensgruppentreffen am 19. Februar 2020 ◦ EK-Entwürfe vom Mai 2020 (Produktgestaltung und -information) ◦ Konsultationsforum (4. Juni 2020)
    - **EK-Entwürfe vom Juni 2020 (Produktgestaltung und -information)**
      - Texte der EU-Kommission (10. Juni 2020)
      - Arbeitshilfen/Diskussionstexte
      - **Stellungnahmen**
        - Mitgliedstaaten
        - **Andere Interessensvertretungen**
          - **Hersteller Heraeus Noblelight (30. Juni 2020)**
            - **Produktgestaltung**
            - Produktinformation
          - Andere: ◦ Herstellerverband Lighting Europe ◦ Herstellerverband APPLiA ◦ Unterhaltungssektor ◦ Prof. Linow, Hochschule Darmstadt, DE ◦ Umweltorganisationen
- **Öffentliche Konsultationen auf EU-Ebene**
- **Diskussion im Offenen Forum**
- **Weitere Dokumente**

Abkürzungen: ● EG = Europäische Gemeinschaft ● EK = EU-Kommission ● EU = Europäische Union

EN

Documents in the Open Forum (**abc** = text at hand)

- **Existing EC and EU Regulations**
- **Studies of the European Commission**
- **Draft regulations**
  - Earlier drafts
  - **Amending Regulations**
    - Forerun: ◦ Comments in advance, background information and discussion texts ◦ Informal stakeholder meeting on 19 February 2020 ◦ EU Commission's drafts of May 2020 (Product design and information) ◦ Consultation Forum (4 June 2020)
    - **EU Commission's drafts of June 2020 (Product design and information)**
      - Texts of the EU Commission (10 June 2020)
      - Working aids/Discussion texts
      - **Comments**
        - Member States
        - **Other interested parties**
          - **Manufacturer Heraeus Noblelight (30 June 2020)**
            - **Product design**
            - Product information
          - Others: ◦ Manufacturer association Lighting Europe ◦ Manufacturer association APPLiA ◦ Entertainment sector ◦ Prof. Linow, University of applied sciences Darmstadt, DE ◦ Environmental organisations
- **Public Consultations at EU level**
- **Discussion in the Open Forum**
- **Further documents**

Abbreviations: ● EC = European Communities ● EU = European Union

FR

Documents dans le forum ouvert (**abc** = présent document)

- **Règlements existants de la CE et de l'EU**
- **Études de la Commission européenne**
- **Projets de règlements**
  - Projets antérieurs
  - **Règlements modificatifs**
    - Précédent : ◦ Commentaires en avance, informations de fond et textes de discussion ◦ Réunion informelle des parties prenantes le 19 février 2020 ◦ Projets de la Commission européenne du mai 2020 (Conception des produits et informations sur les produits) ◦ Forum consultatif (4 juin 2020)
    - **Projets de la Commission européenne du juin 2020 (Conception des produits et informations sur les produits)**
      - Textes de la Commission européenne (10 juin 2020)
      - Aides du travail/Textes de discussion
      - **Commentaires**
        - États membres
        - **Autres groupes d'intérêt**
          - **Fabricant Heraeus Noblelight (30 juin 2020)**
            - **Conception des produits**
            - Informations sur les produits
          - Autres: ◦ Association de producteurs Lighting Europe ◦ Association de producteurs APPLiA ◦ Secteur du divertissement ◦ Prof. Linow, haute école spécialisée Darmstadt, DE ◦ Organisations environnementales
- **Consultations publiques au niveau de l'UE**
- **Discussion dans le Forum Ouvert**
- **Autres documents**

Abréviations : ● CE = Communauté européenne ● UE = Union européenne

Es folgt ein unveränderter Originaltext.

EN: The following is an unmodified original text.

FR: Ce qui suit est un texte original.

Special Light Sources Manufacturer's Statement on

The EU Commission's discussion paper on possible amendments to 2019 Commission Regulations with regard to energy labelling and ecodesign requirements (10 June 2020)[1]

COMMISSION REGULATION (EU) 2019/2020 laying down ecodesign requirements for light sources and separate control gears pursuant to Directive 2009/125/EC of the European Parliament and of the Council and repealing Commission Regulations (EC) No 244/2009, (EC) No 245/2009 and (EU) No 1194/2012

We fully agree with and strongly support the changes suggested by the European Commission on Annex III, point 3(s) to include all incandescent light sources with non-standard interfaces for industrial electro-heating installations[2].
Incandescent light-sources emit optical radiation in the visible as well as the infrared spectrum. Incandescent light-sources have a low energy efficiency when used for general lighting, but they are highly energy efficient when it comes to the generation of infrared emission. Therefore, they are by far the best technical solution for industrial electro-heating applications.
Infrared electro-heating emitters are optimised to maximize process efficiency of the electro-heating process. Strengthening electrical processes throughout all sectors of industry is implied by the EU Green Deal and EU climate action[3].

Applications of incandescent electro-heating emitters in industry
Infrared electro-heating emitters (with or without halogen filling) are designed and intended for industrial electro-heating equipment. Applications of such emitters are for example

- advanced coating processes for photovoltaics, solar-thermal or electronics manufacturing
- 3D printing
- hardening and drying of inks, paints and coating
- all kinds of forming especially but not limited to plastics and modern high-performance materials like fibre-reinforced plastics
- soldering and welding

in sectors like automotive, aircraft, electronics, food, pharmacy, photovoltaics, plastics, printing, semiconductor etc. Electro-heating is the only available technical alternative to heating with fossil fuels in many industrial processes. They are a relevant mainstay of core technologies for digitalization and renewable energy generation.

Characteristics of incandescent electro-heating light sources for industrial applications
Electro-heating emitters are not intended for general lighting applications like luminaires.

- Technology: industrial electro-heating emitters use the same technology as incandescent lamps but differ in their design and cost structure to hinder any diffusion into general lighting applications.

[1] https://www.eup-network.de/fileadmin/user_upload/Lichtquellen_EK_2020_06_10_PG_PI_Diskussion.pdf
[2] Electro-heating and infrared electro-heating are defined and covered by the European standard EN 60519-1 Ed. 6.0 – Safety installations for electroheating and electromagnetic processing – Part 1: General requirements
[3] https://ec.europa.eu/clima/policies/eu-climate-action_en

- Operating voltage: Infrared emitters are operated depending on customer requirements with voltages up to 1000V AC. Most of them cannot be operated under household electrical conditions.
- Starting current: due to a high starting current of up to 17 times of the rated current infrared emitters can only be operated in industrial environments. The reason for this is that fuses or line safety switches used in households would break or be triggered at such high currents.
- Electrical power: whereas commercially available light bulbs used for general lighting have an electrical power of 40 to 100W, shortwave infrared emitters can have an electrical power of up to 40.000 W depending on the application
- Dimensions: infrared emitters designed for industrial processes have customised length and shape that differ from dimensions suited for general lighting applications; most applications demand dimensions of 1 m up to 6 m length.
- Connection/Socket: They usually have blade contact, cable, wire- or non-standard customised electrical interfaces which makes it impossible to install them in commercially available luminaires. Electrically trained persons are required to install and operate these emitters.
- Cost and sales: expensive materials (e.g. rugged quartz-glass tubes, large diameter tungsten coils, tantalum discs etc.) are used for electro-heating infrared emitters to enable a long lifetime in excess of 10.000 hours of continuous operation. The channel of distribution (b2b) and sales price exclude sales to the general public; emitters are typically sold at prices exceeding LED lamps for general lighting by a factor of 50 to 500.

Infrared electro-heating emitters where the surface temperature of the incandescent material exceeds about 2000 K (1700°C) are in scope of the regulation as they meet the definition of a "light source" in Article 2, No. 1. As they cannot meet the energy efficiency requirements set out in Annex II, Regulation 2019/2020 will prohibit the use of infrared electro-heating in many core industrial applications and it will hinder the future use of electrical energy in many industrial processes, i.e. making a transition from fossil fuels to electricity impossible for industry in the European Union.

The following recitals of Directive 2009/125/EC and Regulation (EU) 2019/2020 serve to justify that industrially used incandescent electro-heating light sources need to be exempted from the ecodesign requirements:

Recitals (14) energy efficiency and (17) best available technologies of 2009/125/EC
Currently only halogen light sources for electro-heating applications are exempted from the requirements by exemption No 3(s) in Annex III. Infrared electro-heating emitters with or without halogen filling are the only relevant technology with an energy efficiency (conversion of electric current into usable heat (not conversion into visible light!)) of almost 100% in the field of infrared electro-heating, as illustrated in Figure 1. Specially designed emitters (large, high power) enable these processes at high energy efficiency, with long lifetime and at low cost. Quite often there is no alternative on the market, i.e. the loss of this technology will directly lead to a deindustrialisation of the processes from the European Union, thus endangering growth in relevant future technologies.
The technical alternatives for high power applications (e.g. LED or vortex cooled flash-lamps) come at prohibitive cost and lower energy efficiency: Liquid cooling becomes necessary due to high conversion losses to remove about 50% or more of the applied electricity as waste heat.

Halogen light sources (Annex III, No. 3(s)) are limited by environmental conditions (the halogen cycle operates only in specific temperature settings), thus the electric connection limits their application. Only non-halogen incandescent emitters can overcome design constraints typical for many industrial applications (long unheated ends, cooled pinching, vacuum lead through). Non-halogen incandescent lamps can be designed for a much broader range of colour temperature, thus enabling higher efficiency in industrial processes through better matching of spectra. Low temperature non-halogen emitters show a lifetime well exceeding that of halogen lamps, enabling uninterrupted operation over years.
Refer to the Best Available Technology (BREFs) documents of the EU Commission (e.g. Reference Document on Best Available Techniques for Energy Efficiency, code ENE; http://eippcb.jrc.ec.europa.eu/reference/).

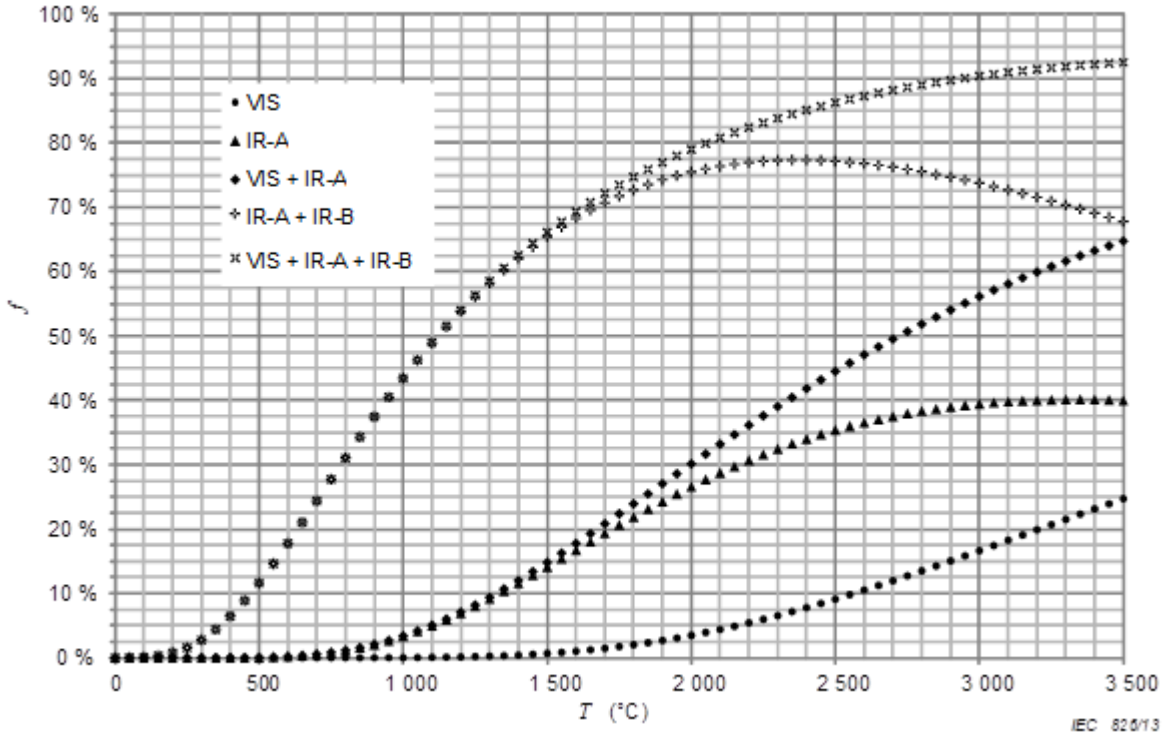


Figure 1: Fraction of energy provided in defined bands: VIS = 380 to 780 nm, IR A = 780 to 1400 nm, IR B = 1400 to 3000 nm. The balance is not lost, but emitted as IR C = 3000 nm to 1 mm. This figure illustrates the high energy conversion achieved through the use of incandescent lamps into the industrially relevant IR-A and IR-B bands.[4]

Recital (15) light sources for special applications of (EU) 2019/2020
Exemptions from the requirements set out in this regulation should be made for light sources with special technical features for use in specific applications in industrial environments. This applies to the infrared electro-heating emitters described above. They should therefore be exempted from the ecodesign requirements laid down in this regulation irrespective of their containing halogen or not.

Exemption proposal
Taking the above arguments into consideration, we fully agree with the suggestion of the European Commission to amend point 3(s) of Annex III of Regulation 2019/2020 as follows:

[4] The figure is from the European standard EN IEC 60519-12 ed. 2, *Safety in installations for electroheating and electromagnetic processing - Part 12: Particular requirements for infrared electroheating*

Provision	Current text	Amended text
Annex III, point 3(s)	halogen light sources with blade contact-, metal lug-, cable-, litz wire- or non-standard customised electrical interface, specifically designed and marketed for industrial or professional electro-heating equipment (e.g. stretch blow-moulding process in PET Industry, 3D-printing, gluing, inks, paint and coating hardening);	**Incandescent light sources** with blade contact-, metal lug-, cable-, litz wire- or non-standard customised electrical interface, **encasing made from quartz-glass tubes**, specifically designed and marketed for industrial or professional electro-heating equipment (e.g. stretch blow-moulding process in PET-Industry, 3D-printing, **photovoltaic and electronic manufacturing processes**, **drying or hardening of adhesives**, inks, paints or coatings);

Background information why certain incandescent electro-heating emitters are affected by the current regulations on ecodesign and product labelling

A definition of “light source” with certain characteristics like chromaticity coordinates is given in Article 2, No. 1 of the above-mentioned regulations defining the range of visible light. Infrared electro-heating emitters generate an output radiation which is usually at or near the Planck Locus in the CIE diagram (Figure 2). Any infrared emitter will thus become a light source in the sense of Regulation 2019/2020, once the surface temperature of the incandescent material exceeds about 2000 K (1700°C). This feature is independent of the gas filling (a noble gas with or without the addition of a halogen). Incandescent lamps are usually filled with a noble gas (Argon) and achieve rated lifetimes of 7500 h (which is about one year of continuous operation, often the minimum requirement for industrial use) below 2500 K (2200°C). They can be designed to operate at the complete range between 1700 K to 3300 K (1400°C to 3000°C), but lifetime is dramatically limited above 2600 K (2300°C), making their use uneconomic.

Halogen-filled incandescent lamps are filled with a halogen (Bromine, Iodine, Chlorine or Fluorine) to extend the lifetime of the lamp at very high colour temperature- Halogen lamps have a longer lifetime at identical performance than incandescent lamps in the temperature range above 2600 K (2300°C), but the addition of the halogen limits the lifetime through internal corrosion below that temperature.

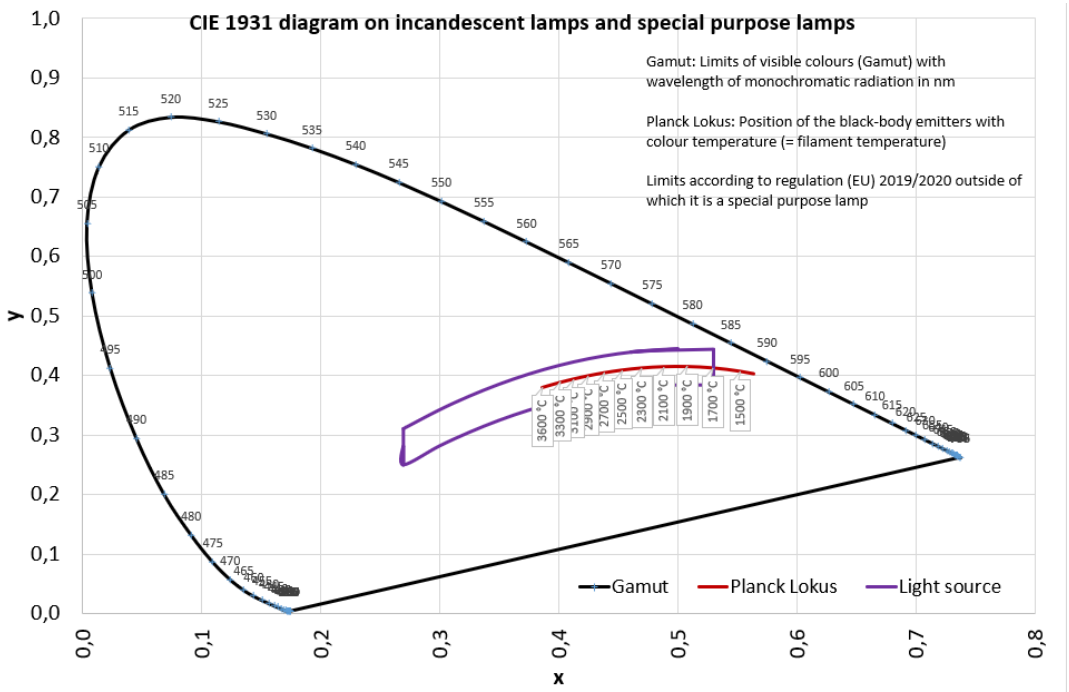
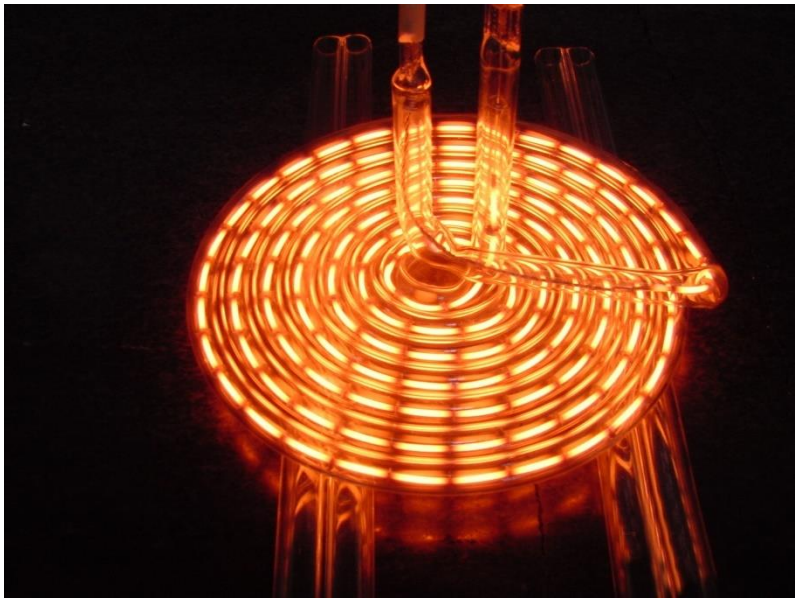


Figure 2: CIE diagram with chromaticity coordinate range of light source according to definition (1) in Article 2 of Regulation (EU) 2019/2020 (© Heraeus Noblelight GmbH)

Images of shortwave infrared emitters:

Customised, non-standard shapes



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Non-standard electrical interface:

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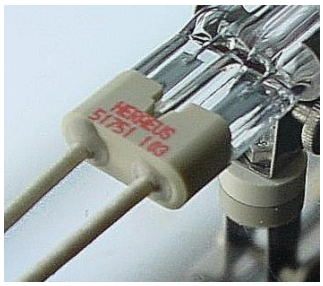

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