

1. PRODUCT AND COMPANY IDENTIFICATION

Product name: Electrosect, Eclipse, Illume Fluorescent lamps,
 Linear and Compact (for UVA applications)

Product code: BG-2633 Rev 04 Date. 17-12-2014

Company: Brandenburg UK Limited
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 Hurst Business Park
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Technical Assistance Telephone Number: +44 1384 472900

2. HAZARDS IDENTIFICATION

Not applicable to intact lamp. Lamp may crack when falling to the ground.
 The breakage of one or a small number of lamps will not result in significant concentrations of Mercury vapour or fluorescent phosphor powder in air.

3. COMPOSITION / INFORMATION ON INGREDIENTS

There are no known health hazards from intact lamps.

If the glass lamp is broken then the following materials may be released,

| Components: | CAS-No: EC-No: | % by Weight | EC Classification | |
|-------------------------------------|---------------------------|------------------------|--------------------------------|--------------------------------|
| Glass | | >90 | - | - |
| Strontium borate, europium-doped | 102110-29-2 310-028-8 | <2 | | |
| Krypton | 7439-90-9 231-098-5 | <0,1 | R | R99 |
| Argon | 7440-37-1 231-147-0 | <0,1 | R | R99 |
| Mercury | 7439-97-6 231-106-7 | <0,1 | Repr. Cat.2 T+ T N | R61 R26 R48/23 R50/53 |

| | | | | |
|-----------------|------------------------|------|--|--|
| Tungsten | 7440-33-7 231-143-9 | <0,1 | | |
| Metals | | <2 | | |
| Capping Element | | <2 | | |

The full text of Risk phrases and Hazard statement Codes are listed under heading 16.

Description of Symbols abbreviation:

T= Toxic; T+= Very Toxic;

N= Dangerous to the environment

4. FIRST-AID MEASURES

There are no known health hazards from intact lamps.
 If the glass lamp is broken then the following will apply

Description of first aid measures

- Skin:** Apply normal first aid if cuts occur through normal lamp breakage.
- Inhalation:** If discomfort, irritation or symptoms of pulmonary involvement develop, remove from exposure and seek medical attention.
- Ingestion:** In the unlikely event of ingestion of a large quantity of material, seek medical attention.
- Eye Contact:** Wash eyes, including under eyelids, immediately with copious amounts of water for 15 minutes. In case of irritation, seek medical attention.

5. FIRE FIGHTING MEASURES

- Flammability:** The lamp is non-combustible
- Fire extinguishing materials:** No special materials are required.
 Use extinguishing agents suitable for the surrounding fire.

Special fire-fighting procedure: Use self-contained breathing apparatus to prevent inhalation of dust or fumes that may come from lamps broken by the heat or fire-fighting activities.

Hazardous decomposition products in fire Silicon dioxide, aluminium oxides, mercury oxides, strontium oxide, boric oxides, europium oxides, metal oxide, tungsten oxides

6. ACCIDENTAL RELEASE MEASURES

Spillage procedure: Not applicable if lamp is in original state. If lamps are broken: ventilate area where breakage occurred. Clear up using special mercury vacuum cleaner or other appropriate agent for preventing vapourisation. Take standard measures for clearing up broken glass and deposit in a lockable container. Remove for appropriate disposal.

Do not breathe vapours or dust. Avoid contact with skin, eyes and clothing.

Do not flush into surface water, ground water, or sanitary sewer.

7. HANDLING AND STORAGE

For indoor and outdoor use if not exposed to the weather. Must be kept dry.

When the lamp is removed from service, usually at the end of life, it will be subject to the relevant Waste Electrical and Electronic Equipment Directive in accordance with Local State or Federal Laws.

It is the responsibility of the waste generator to ensure proper classification of waste products, including this one.

Brandenburg UK Ltd encourages the recycling of its products by qualified recyclers.

8. EXPOSURE CONTROL / PERSONAL PROTECTION

These instructions only apply to broken lamps. As stated in Section 2, small numbers of broken lamps will present no adverse health effects.

- Ventilation: Use both general and local exhaust ventilation to maintain exposure levels below the Long or Short Term limits. If such ventilation is not available use the respirators as specified below.
- Respiratory Protection: European Standard EN 149 or US ASNI Z88.2 must be followed whenever workplace conditions warrant a respirator's use.
- Eye protection: The use of safety glasses, goggles or face shields is recommended for handling broken lamps, as described in European Standard EN 166 or US ANSI Z87.1.
- Protective clothing: Wear appropriate protective clothing to prevent skin exposure.
- Hygiene: After handling broken lamps wash thoroughly before eating, handling tobacco products, applying cosmetics or using toilet facilities.

Exposure limits:

Applicable to: Netherlands (20°C; 1013 mbar)

- Glass:** No MAC(STEL) has been laid down
- Strontium borate, europium-doped:** No MAC(STEL) has been laid down
- Krypton/Argon:** No MAC(STEL) has been laid down
- Mercury:** TLV: 0.05mg/m³ (Women in the fertile age: consult the industrial safety officer).
STEL: 0.05mg/m³ (Women in the fertile age: consult the industrial safety officer).
- Mercury:** TLV: 0.05mg/m³ (Women in the fertile age: consult the industrial safety officer).
STEL: 0.05mg/m³ (Women in the fertile age: consult the industrial safety officer).
- Tungsten:** No MAC(STEL) has been laid down
- Metals:** No MAC(STEL) has been laid down
- Capping element:** No MAC(STEL) has been laid down

Applicable to: Belgium (20°C; 1013 mbar)

- Mercury:** S TLV: 0.025mg/m³ S (Women in the fertile age: consult the industrial safety officer).
- Tungsten** TLV: 5mg/m³
- Tungsten:** STEL: 10 mg/m³

Applicable to: Germany (20°C; 1013 mbar)

Mercury: S TLV: 0.1mg/m³ (Women in the fertile age: consult the industrial safety officer).
Tungsten TLV: 5mg/m³ (as inhalable dust)

Applicable to: USA (25°C; 1013 mbar)

Krypton/Argon: No MAC(STEL) has been laid down
Mercury: S TLV: 0.025mg/m³ (Women in the fertile age: consult the industrial safety officer).
Tungsten: TLV: 5mg/m³
Tungsten: STEL:10mg/m³

| | |
|---|----------------|
| Remarks exposure limits: | None |
| Odour threshold (20°C; 1013 mbar) | Not traceable |
| Advised personal protection(Skin): | Not applicable |
| Advised personal protection(eyes): | Not applicable |
| Advised personal protection(inhalation): | Not applicable |

9. PHYSICAL AND CHEMICAL PROPERTIES

Not applicable for intact lamps

Information on basic physical and chemical properties

| | |
|---|---------------------------------|
| Physical state: | Article |
| Colour: | Type dependant |
| Odour: | Odourless |
| Vapour rate/range: | Not applicable |
| Boiling point/range: | Not traceable |
| Melting point/range (°C): | >480°C(Glass); >130°C(Plastics) |
| Flash point/range: | Not applicable |
| Explosive limits: | Not applicable |
| Dust explosions possible in air: | Not applicable |
| Density: | Not traceable |
| Vapour pressure: | Not applicable |
| Solubility in water: | Not applicable |
| Solubility in fat: | Not applicable |
| pH: | Not applicable |
| Viscosity: | Not applicable |
| Autoignition temperature: | Not applicable |
| Decomposition temperature: | Not traceable |
| Electrostatic chagement: | Not traceable |

10. STABILITY AND REACTIVITY

Product is stable under conditions described in section 7

Stability: Both the glass and the PBT plastic are stable

Conditions to avoid : None, for intact lamps

Incompatibility: None, for intact lamps

Hazardous decomposition: None, for intact lamps products

Hazardous polymerization: Will not occur

11. TOXICOLOGICAL INFORMATION

Not applicable for intact lamps

Symptoms: Not applicable

Toxicity: Not traceable

Ames test: Not traceable

12. ECOLOGICAL INFORMATION

Not applicable for intact lamps

| | |
|--|-------------------------------------|
| Biological oxygen demand (5): | Not traceable |
| Chemical oxygen demand: | Not traceable |
| Biological/chemical oxygen demand ratio: | Not traceable |
| Degradability: | Not traceable |
| Biochemical factor: | >2500 MERCURY (Source: supplier) |
| Log Po/w: | 4.5 MERCURY (Source: chemical card) |
| Henry Constant: | Not traceable |

Ecotoxicity:

Mercury Fish: LC-50: 0.004 mg/l/96H (Source: supplier)

Mercury Daphnia: EC-50: 0.0052 mg/l/48H (Source: supplier)

Mercury Algae: IC-50: 0.3 mg/l/72H (Source: supplier)

13. DISPOSAL CONSIDERATIONS

When the lamp is removed from service, usually at the end of life, it will be subject to the Waste Electrical and Electronic Equipment Directive.

It is the responsibility of the waste generator to ensure proper classification of waste products, including this one.

Brandenburg UK Ltd encourages the recycling of its products by qualified recyclers.

All fluorescent lamps contain some amount of mercury.
All disposal options should be evaluated with respect to the requirements of the relevant local and national legislation. Before disposing of waste lamps, check with state, country, and/or local officials for current guidelines and regulations.

14. TRANSPORT INFORMATION**ADR/RID**

UN-number: 2809 Mercury in manufacturing articles
Class: 8
Packing group: III
Transport emergency card: 80GC9-III

IMO

UN-number: 2809 Mercury in manufacturing articles
Class: 8
Packing group: III
Marine pollutant: No

IATA/ICAO

UN-number: 2809 Mercury in manufacturing articles
Class: 8
Packing group: III

15. REGULATORY INFORMATION

When the lamp is removed from service, usually at the end of life, it will be subject to the Waste Electrical and Electronic Equipment Directive.
EC-Label: Not applicable.

16. OTHER INFORMATION

Toxic mercury vapours can be released if lamp is broken.
These lamps emit Ultraviolet Radiation (UV-A). Avoid prolonged exposure.
For transport exemption consult applicable regulations.
The product contains ≤ 10 mg mercury.

Overview relevant R-sentences from all components in section 3

- R26 Very toxic on inhalation
- R48/23 Toxic: danger of serious damage to health by prolonged exposure through inhalation.
- R50/53 Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.
- R61 May cause harm to the unborn child.
- R99 Suffocating in high concentrations.