

SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1 Product identifier

<u>Trade name:</u>	<u>Article number:</u>
D-Luciferin, sodium salt	BT11-100 Na (100 mg) BT11-500 Na (500 mg) BT11-1000 Na (1 g) BT11-5000 Na (5 g)
D-Luciferin, potassium salt	BT11-100 K (100 mg) BT11-500 K (500 mg) BT11-1000 K (1 g) BT11-5000 K (5 g)
D-luciferin, free acid	BT11-100 (100 mg) BT11-500 (500 mg) BT11-1000 (1 g) BT11-5000 (5 g)
L-Luciferin	BT12-100 (100 mg)

1.2 Relevant identified uses of the substance or mixture and uses advised against

Biochemical analysis

For additional information on uses please refer to the BioThema AB website (<https://biothema.com>) or e-mail us at support@biothema.com

1.3 Details of the supplier of the safety data sheet

BioThema AB

Handens stationsväg 17

136 40 Handen

Sweden

+46 (0)8 7770020

Email address: support@biothema.com

MSDS author: BioThema AB

1.4 Emergency telephone number

Emergency telephone #: 112

Emergency Action: In the event of a medical enquiry involving this product, please contact your doctor or local hospital accident and emergency department

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

Classification according to Regulation (EC) No 1272/2008.

Skin irritation (category 2), H315

Eye irritation (category 2), H319

Respiratory irritation, H335

For the full text of the H-Statements mentioned in this Section, see Section 16.

Safety data sheet
according to 1907/2006/EC, Article 31
Luciferin

Revision: 23.03.2020

Supersedes version issued: 25.06.2012

2.2 Label elements

Labeling according to Regulation (EC) No 1272/2008.

The product is classified and labelled according to the CLP regulation.

Pictogram



Signal Word: Warning

Hazard statement(s)

H315 Causes skin irritation

H319 Causes serious eye irritation

H335 May cause respiratory irritation

Precautionary statement(s)

Void

2.3 Other Hazards

None known

Results of PBT and vPvB assessment in accordance with Annex XIII of (EC) No 1907/2006:

This mixture contains no components considered to be either persistent, bioaccumulative and toxic (PBT), or very persistent and very bioaccumulative (vPvB) at levels of 0.1% or higher.

SECTION 3: Composition/information on ingredients

3.1 Substances

Not applicable

3.2 Mixtures

Solid. No disclosure requirement according to Regulation (EC) No 1272/2008

EC	CAS	Chemical name	Percent

SECTION 4: First aid measures

4.1 Description of first aid measures

Personal protective equipment for first aid responders is not required.

No immediate medical attention required.

After inhalation: Remove person to fresh air and keep comfortable for breathing (P304+P340). Consult doctor in case of complaints (P312).

After skin contact: The product might cause skin irritation; after contact, rinse skin with plenty of water (P302+P352). Good practice is to remove contaminated clothing and wash it before reuse (P362+364). If skin irritation occurs, get medical advice/attention (P332+P313).

Safety data sheet
according to 1907/2006/EC, Article 31
Luciferin

Revision: 23.03.2020

Supersedes version issued: 25.06.2012

After eye contact: Rinse cautiously opened eye for several minutes under running water as a precaution (P305+P351). Remove contact lenses and continue rinsing (P338). If eye irritation persists, get medical advice/attention (P337+P313).

After ingestion: Drink water (two glasses at most). Consult doctor if feeling unwell (P312).

If these recommendations are not followed the exposed person could experience a delayed eye irritation and skin irritation.

4.2 Most important symptoms and effects, both acute and delayed

May cause irritation. We have no further description of any symptoms.

4.3 Indication of any immediate medical attention and special treatment needed

No information available.

SECTION 5: Firefighting measures

5.1 Extinguishing media

Suitable extinguishing media:

CO₂, powder or water spray. Fight larger fires with water spray or alcohol resistant foam. Use extinguishing media that is appropriate to the local surrounding environment and circumstance.

Unsuitable extinguishing media:

For this product no limitations of extinguishing media are given.

5.2 Special hazards arising from the substance or mixture:

No data available

5.3 Advice for firefighters:

Wear protective clothing for firefighters. Wear self-contained breathing apparatus for firefighting if necessary.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures:

Advice for non-emergency personnel:

Wear suitable protective equipment as specified in SECTION 8

Advice for emergency personnel:

Wear suitable protective equipment as specified in SECTION 8

6.2 Environmental precautions

Dilute with plenty of water. Do not allow to enter sewers/ surface or ground water.

6.3 Methods and material for containment and cleaning up

Sweep up/absorb with any liquid-binding material and dispose according to section 13.

Safety data sheet
according to 1907/2006/EC, Article 31
Luciferin

Revision: 23.03.2020

Supersedes version issued: 25.06.2012

6.4 Reference to other sections

See section 7 for safe handling

See section 13 for disposal information

SECTION 7: Handling and storage

7.1 Precautions for safe handling:

Advice on safe handling:

P280 Wear protective gloves/protective clothing

P261 Avoid breathing dust

P271 Use only in a well-ventilated area

Advice on hygiene measures:

Good practice is to wash hands before and after working with this mixture. Change contaminated clothing.

7.2 Conditions for safe storage, including any incompatibilities

Storage conditions:

P403+233 Store in a well-ventilated place. Keep container tightly closed

See product label for recommended storage temperature

7.3 Specified end use(s)

See subsection 1.2.

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

Components with workplace control parameters:

None

8.2 Exposure controls

Engineering controls:

General industrial hygiene practice.

Good general ventilation (typically 10 air changes per hour) should be used. Ventilation rates should be matched to conditions. If applicable, use process enclosures, local exhaust ventilation, or other engineering controls to maintain airborne levels below recommended exposure limits. If exposure limits have not been established, maintain airborne levels to an acceptable level.

Individual protection measures:

Personal protection equipment should be chosen according to the CEN standards and in discussion with the supplier of the personal protective equipment. Considerations to specific work environment where the product is used should be made.

Eye/face protection:

Safety glasses tested and approved under standards such as EN 166(EU).

Skin protection:

Wear appropriate chemical resistant gloves. We recommend single use vinyl gloves. The exact break through time for substances must be obtained from the manufacturer of the protective gloves and has to be observed when making a final choice.

Safety data sheet
according to 1907/2006/EC, Article 31
Luciferin

Revision: 23.03.2020

Supersedes version issued: 25.06.2012

Wear lab coat or suitable protective clothing.

Respiratory protection:

Not required normally. In case of insufficient ventilation, wear suitable respiratory equipment.

Thermal hazards:

Wear appropriate thermal protective clothing, when necessary.

Environmental exposure controls

No special precautionary measures necessary.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

<i>State of matter:</i>	<i>Solid</i>
<i>Form:</i>	<i>Powder</i>
<i>Colour:</i>	<i>Colourless</i>
<i>Odour:</i>	<i>Characteristic</i>
<i>Odour threshold:</i>	<i>No information available.</i>
<i>pH:</i>	<i>No information available. Not determined.</i>
<i>Melting point/freezing point:</i>	<i>No information available. Not determined.</i>
<i>Initial boiling point and boiling range:</i>	<i>No information available. Not determined.</i>
<i>Flash point:</i>	<i>Not applicable. Not flammable.</i>
<i>Evaporation rate:</i>	<i>No information available. Not determined.</i>
<i>Flammability (solid, gas):</i>	<i>Not applicable. Not flammable.</i>
<i>Upper/lower flammability or explosive limits:</i>	<i>Not applicable. Not flammable.</i>
<i>Vapour pressure:</i>	<i>No information available. Not determined.</i>
<i>Vapour density:</i>	<i>No information available. Not determined.</i>
<i>Relative density:</i>	<i>No information available. Not determined.</i>
<i>Solubility(ies):</i>	<i>Free acid is insoluble</i>
<i>Partition coefficient: n-octanol/water:</i>	<i>All other products are fully miscible in water</i>
<i>Auto-ignition temperature:</i>	<i>No information available. Not determined.</i>
<i>Decomposition temperature:</i>	<i>Not applicable. Not flammable.</i>
<i>Viscosity:</i>	<i>No information available. Not determined.</i>
<i>Explosive properties:</i>	<i>No information available. Not determined.</i>
<i>Oxidising properties:</i>	<i>Not classified as explosive.</i>
	<i>No information available. Not determined.</i>

9.2. Other Information

No relevant additional information available.

SECTION 10: Stability and reactivity

10.1 Reactivity

The product is stable and non-reactive under normal conditions of use, storage and transport.

10.2 Chemical stability

Material is stable under normal conditions.

10.3 Possibility of hazardous reactions

No dangerous reaction known under conditions of normal use.

Safety data sheet
according to 1907/2006/EC, Article 31
Luciferin

Revision: 23.03.2020

Supersedes version issued: 25.06.2012

10.4 Conditions to avoid

Contact with incompatible materials. Do not heat closed container. Do not pressurize container.

10.5 Incompatible materials

Strong oxidising or reducing agents. Strong acids or strong bases.

10.6 Hazardous decomposition products

No hazardous decomposition products are known.

SECTION 11: Toxicological information

11.1 Information on toxicological effects

General information

The toxicological properties have not been fully investigated.

Handle in accordance with good industrial hygiene and safety practice.

Information on likely routes of exposure

Ingestion: May be harmful if swallowed.

Inhalation: Prolonged inhalation may be harmful.

Skin exposure: Prolonged contact with skin may cause temporary irritation.

Eye exposure: Direct contact with eyes may cause temporary irritation.

Symptoms: Exposure may cause temporary irritation, redness, or discomfort.

acute toxicity	Due to partial or complete lack of data the classification is not possible
skin corrosion/irritation	Due to partial or complete lack of data the classification is not possible
serious eye damage/irritation	Due to partial or complete lack of data the classification is not possible
respiratory or skin sensitisation	Due to partial or complete lack of data the classification is not possible
germ cell mutagenicity	Due to partial or complete lack of data the classification is not possible
carcinogenicity	Due to partial or complete lack of data the classification is not possible
reproductive toxicity	Due to partial or complete lack of data the classification is not possible
STOT-single exposure	Due to partial or complete lack of data the classification is not possible
STOT-repeated exposure	Due to partial or complete lack of data the classification is not possible
aspiration hazard	Due to partial or complete lack of data the classification is not possible

SECTION 12: Ecological information

12.1 Toxicity

No data available

12.2 Persistence and degradability

No data available

12.3 Bioaccumulative potential

Bioconcentration factor (BCF)

No data available

n-octanol/water (log K_{ow})

No data available

12.4 Mobility in soil

No data available

Safety data sheet
according to 1907/2006/EC, Article 31
Luciferin

Revision: 23.03.2020

Supersedes version issued: 25.06.2012

12.5 Results of PBT and vPvB assessment

This product does not contain a PBT or vPvB or substances.

12.6 Other adverse effects

No data available

12.7 General notes:

Water hazard class 1 (German Regulation) (Self-assessment): slightly hazardous for water.

Do not allow undiluted product or large quantities of it to reach ground water, water course or sewage system.

SECTION 13: Disposal considerations

13.1 Waste treatment methods

Residual waste

Dispose of in accordance with local regulations. Empty containers or liners may retain some product residues.

This material and its container must be disposed of in a safe manner.

Contaminated packaging

Empty containers should be taken to an approved waste handling site for recycling or disposal. Since emptied containers may retain product residue, follow label warnings even after container is emptied.

EU waste code

The Waste code should be assigned in discussion between the user, the producer and the waste disposal company.

Disposal methods/information

Collect and reclaim or dispose in sealed containers at licensed waste disposal site.

Special precautions

Dispose in accordance with all applicable regulations.

SECTION 14: Transport information

14.1 UN number

ADR/RID: Not regulated as dangerous goods.

IMDG: Not regulated as dangerous goods.

IATA: Not regulated as dangerous goods.

14.2 UN proper shipping name

ADR/RID: Not regulated as dangerous goods.

IMDG: Not regulated as dangerous goods.

IATA: Not regulated as dangerous goods.

14.3 Transport hazard class(es)

ADR/RID: Not regulated as dangerous goods.

IMDG: Not regulated as dangerous goods.

IATA: Not regulated as dangerous goods.

14.4 Packaging group

ADR/RID: Not regulated as dangerous goods.

IMDG: Not regulated as dangerous goods.

IATA: Not regulated as dangerous goods.

Safety data sheet
according to 1907/2006/EC, Article 31
Luciferin

Revision: 23.03.2020

Supersedes version issued: 25.06.2012

14.5 Environmental hazards

ADR/RID: Not regulated as dangerous goods.

IMDG: Not regulated as dangerous goods.

IATA: Not regulated as dangerous goods.

14.7 Transport in bulk according to Annex II of Marpol and the IBC Code

Not applicable

SECTION 15: Regulatory information

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture

EU Regualtions

Regulation (EC) No. 1005/2009 on substances that deplete the ozone layer, Annex I and II, as amended

Not listed.

Regulation (EC) No. 850/2004 On persistent organic pollutants, Annex I as amended

Not listed.

Regulation (EU) No. 649/2012 concerning the export and import of dangerous chemicals, Annex I, Part 1 as amended

Not listed.

Regulation (EU) No. 649/2012 concerning the export and import of dangerous chemicals, Annex I, Part 2 as amended

Not listed.

Regulation (EU) No. 649/2012 concerning the export and import of dangerous chemicals, Annex I, Part 3 as amended

Not listed.

Regulation (EU) No. 649/2012 concerning the export and import of dangerous chemicals, Annex V as amended

Not listed.

Regulation (EC) No. 166/2006 Annex II Pollutant Release and Transfer Registry

Not listed.

Regulation (EC) No. 1907/2006, REACH Article 59(10) Candidate List as currently published by ECHA

Not listed.

Authorisations Regulation

(EC) No. 1907/2006, REACH Annex XIV Substances subject to authorization, as amended

Not listed.

Restrictions on use

Regulation (EC) No. 1907/2006, REACH Annex XVII Substances subject to restriction on marketing and use as amended

Not listed.

Directive 2004/37/EC: on the protection of workers from the risks related to exposure to carcinogens and mutagens at work

Not listed.

Directive 92/85/EEC: on the safety and health of pregnant workers and workers who have recently given birth or are breastfeeding

Not listed.

Safety data sheet
according to 1907/2006/EC, Article 31
Luciferin

Revision: 23.03.2020

Supersedes version issued: 25.06.2012

Other EU regulations

Directive 2012/18/EU on major accident hazards involving dangerous substances

Not listed.

Directive 98/24/EC on the protection of the health and safety of workers from the risks related to chemical agents at work

Not listed.

Directive 94/33/EC on the protection of young people at work

Not listed.

Other regulations

The product is classified and labelled in accordance with EG 1272/2008 (CLP regulation) as amended. This

Safety Data Sheet complies with the requirements of Regulation (EC) No 1907/2006 as amended.

National regulations

Follow national regulation for work with chemical agents.

SECTION 16: Other information

List of abbreviations

CLP: Classification, Labelling and Packaging

AND: Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways

RID: Regulations Concerning the International Transport of Dangerous Goods by Rail

ADR: European Agreement concerning the International Carriage of Dangerous Goods by Road

IATA: International Air Transport Association

IMDG: International Maritime Code for Dangerous Goods

IBC Code: International Code for the Construction and Equipment of Ships carrying Dangerous Chemicals in Bulk

Marpol: International Convention for the Prevention of Pollution from Ships

PBT: Persistent, bioaccumulative and toxic

vPvB: Very persistent and very bioaccumulative

References

ACGIH's documentation of the Threshold Limit Values and Biological Exposure Indices

EPA (Environmental Protection Agency)

HSDB®-Hazardous Substances Data Bank

IARC- monographs on the carcinogenic risks to humans

National toxicology program(NTP) report on carcinogen

Information on evaluation method leading to the classification of mixture

The classification for health and environmental hazards is derived by a combination of calculation methods and test data, if available.

Full text of any H-statements not written out in full under Sections 2 to 15

None.

Training information

Follow training instructions when handling this material.

This revision is updated to comply with the latest regulations of (EC) No 1907/2006. No changes have been made in classification of the product.

Safety data sheet

according to 1907/2006/EC, Article 31

Luciferin

Revision: 23.03.2020

Supersedes version issued: 25.06.2012

This information is based on our present knowledge. However, this shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship. It characterises the product with regard to the appropriate safety precautions.