

|                                   |                        |
|-----------------------------------|------------------------|
| <b>MATERIAL SAFETY DATA SHEET</b> | Page : 1               |
|                                   | Version : 4            |
| <b>LIGHT STICK</b>                | Date : 6/10/2010       |
|                                   | Supersedes : 23/3/2010 |
|                                   | <b>CYALUME</b>         |

## 1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

1.1. Product identifier : LIGHT STICK

1.2. Relevant identified uses of the substance or mixture and uses advised against : Lighting and markings

1.3. Details of the supplier of the safety data sheet

SUPPLIER :

Name :

Address :

Telephone number :

Telefax number :

MANUFACTURER :

Name : : CYALUME TECHNOLOGIES SAS

Address : : 295 rue de Mayor de Montricher  
ZI Les Milles - CS 40435  
13591 Aix-en-Provence  
FRANCE

Telephone number : : (33) (0) 4 42 37 17 83

Telefax number : : (33) (0) 4 42 37 17 99

Department to contact : : nrizzo@cyalume.com

1.4. Emergency telephone number : ORFILA (France) : 33 (0) 1 45 42 59 59

## 2. HAZARDS IDENTIFICATION

2.1. Classification of the substance or mixture

**MOST IMPORTANT HAZARDS :** **Sticks are hermetically closed articles which do not present any particular risk, as long as they are used according to the manufacturer's recommendations**

Adverse human health effects : : In case of deterioration of the stick, resulting in a leak of the liquid, an exposure is possible  
Liquid :  
Harmful if swallowed

Environmental effects : : Presents no particular risk to the environment, provided the recommendations concerning disposal (see section 13) and any applicable national or local regulations are complied with

Physical and chemical hazards : : Not classified as flammable by EC criteria but may present a hazard in the event of a fire

Classification of the product : : Not applicable

2.2. Label elements

EC LABELLING : : Light stick : not applicable

- Symbols and indications of danger : : None

- R phrases : : None

- S phrases : : None

2.3. Other hazards : : None, to our knowledge

# MATERIAL SAFETY DATA SHEET

## LIGHT STICK

Page : 2

Version : 4

Date : 6/10/2010

Supersedes : 23/3/2010

**CYALUME**

### 3. COMPOSITION / INFORMATION ON INGREDIENTS

ARTICLE : : Plastic article containing an oxalate solution in a glass ampoule immersed in an activator

Hazardous constituents :

| Substance name      | Contents  | CAS No    | EC No     | Index No     | Classification   |
|---------------------|-----------|-----------|-----------|--------------|--|
| Oxalate solution :  | :         | ----      | ----      | ----         | -----  |
| Butyl benzoate :    | 60 - 80 % | 136-60-7  | 205-252-7 | ----         | Xn; R22<br>Xi; R36/38<br>-----<br>Acute Tox. 4 (oral) H302<br>Eye irrit. 2 H319<br>Skin Irrit. 2 H315  |
| Activator :         | :         | ----      | ----      | ----         | -----  |
| Hydrogen peroxide : | < 5 %     | 7722-84-1 | 231-765-0 | 008-003-00-9 | O; R8<br>R5<br>Xn; R20/22<br>C; R35<br>-----<br>Ox. Liq. 1 H271<br>Skin Corr. 1A H314<br>Acute Tox. 4 (inhal) H332<br>Acute Tox. 4 (oral) H302 |

### 4. FIRST AID MEASURES

4.1. Description of first aid measures

**Sticks are hermetically closed articles which do not present any particular risk, as long as they are used according to the manufacturer's recommendations**

Inhalation : : Not applicable  
Skin contact : : In the event of contact with the liquid :  
Rinse with water.  
In case of redness or irritation, call a doctor  
Eye contact : : In the event of contact with the liquid :  
Rinse with plenty of water immediately  
If irritation persists, consult an eye specialist  
Ingestion : : Liquid :  
Consult a doctor

4.2. Most important symptoms and effects, both acute and delayed : No information available

4.3. Indication of any immediate medical attention and special treatment needed : No information available

### 5. FIRE-FIGHTING MEASURES

5.1. Extinguishing media

Suitable extinguishing media : : Any extinguishing agent can be used  
Not suitable extinguishing media : : None to our knowledge. If there is a fire close by, use suitable extinguishing agents  
5.2. Special hazards arising from the substance or mixture : : If exposed to high temperatures, which may result of a wrong utilisation or of the environment, leaks of liquid may occur potentially releasing decomposition products of the liquid contained in the article

5.3. Advice for fire-fighters : : Do not attempt to fight the fire without suitable protective equipment :  
Complete protective clothing  
Self-contained breathing apparatus

**CYALUME TECHNOLOGIES SAS**

295, rue Mayor de Montricher ZI Les Milles - CS 40435 13591 AIX EN PROVENCE France

|                                   |                        |
|-----------------------------------|------------------------|
| <b>MATERIAL SAFETY DATA SHEET</b> | Page : 3               |
|                                   | Version : 4            |
| <b>LIGHT STICK</b>                | Date : 6/10/2010       |
|                                   | Supersedes : 23/3/2010 |
|                                   | <b>CYALUME</b>         |

## 6. ACCIDENTAL RELEASE MEASURES

- 6.1. Personal precautions, protective equipment and emergency procedures : No flames, no sparks. Eliminate all sources of ignition.
- 6.2. Environmental precautions : This product does not present any particular risk for the environment
- 6.3. Methods and material for containment and cleaning up
- Recovery : Recover the product by mechanical means.
- Disposal : Dispose of at a licensed waste collection point
- 6.4. Reference to other sections : For further information see section 13

## 7. HANDLING AND STORAGE

- 7.1. Precautions for safe handling
- Technical measures : Does not require any specific or particular technical measures
- Precautions : Sticks are hermetically closed articles which do not present any particular risk, as long as they are used according to the manufacturer's recommendations
- Safe handling advice : Comply with instructions for use (refer to technical sheet)
- 7.2. Conditions for safe storage, including any incompatibilities
- Technical measures : Does not require any specific or particular technical measures
- Storage conditions :
- Recommended : Store :  
- away from any source of ignition  
- in a cool, dry area.
- Incompatible materials : Oxidizing materials  
Reducing materials  
Acids  
Bases
- Packaging materials :
- Recommended : Original packaging
- 7.3. Specific end use(s) : No information available

## 8. EXPOSURE CONTROLS / PERSONAL PROTECTION

- 8.1. Control parameters
- Engineering measures : No specific measures are required provided the product is handled in accordance with the general rules of occupational hygiene and safety.
- Occupational exposure limits :
- France : Hydrogen peroxide : VME : 1.5 mg/m<sup>3</sup> (1 ppm)
- Germany : Hydrogen peroxide : MAK value: 1.4 mg/m<sup>3</sup> (1 ppm)
- 8.2. Exposure controls
- Personal protective equipment :
- Hand protection : Protective rubber gloves

# MATERIAL SAFETY DATA SHEET

## LIGHT STICK

Page : 4

Version : 4

Date : 6/10/2010

Supersedes : 23/3/2010

**CYALUME**

### 9. PHYSICAL AND CHEMICAL PROPERTIES

#### 9.1. Information on basic physical and chemical properties

|                                       |   |
|---------------------------------------|---|
| Physical state :                      | : Solid   |
| Colour :                              | : variable  |
| Odour :                               | : none  |
| Olfactory limit :                     | : Not determined                                  |
| pH :                                  | : Not applicable                                  |
| Specific temperatures :               |   |
| - Boiling :                           | : Not determined                                  |
| - Melting point :                     | : 260 °C  |
| Decomposition temperature :           | : Not determined                                  |
| Flammability characteristics :        |   |
| - Flash point :                       | : Liquid : 93.3 °C                                |
| - Auto-ignition temperature :         | : Not determined                                  |
| Oxidizing properties :                | : Non oxidizing material according to EC criteria |
| Explosive limits in air :             | : Not determined                                  |
| Vapour pressure :                     | : Not determined                                  |
| Vapour density (air = 1) :            | : Not determined                                  |
| Relative density (water = 1) :        | : Not determined                                  |
| Solubility :                          | : Not determined                                  |
| Octanol/water partition coefficient : | : Not determined                                  |
| Kinematic viscosity :                 | : Not determined                                  |
| Evaporation rate :                    | : Not determined                                  |
| 9.2 Further information :             | : No information available                        |

### 10. STABILITY AND REACTIVITY

|  |   |
|--|---|
| 10.1. Reactivity                         | : To our knowledge, the product does not present any particular risk                                      |
| 10.2. Chemical stability                 | : Stable at ambient temperature and under normal conditions of use  |
| 10.3. Possibility of hazardous reactions | : None under normal conditions.   |
| 10.4. Conditions to avoid                | : Heat, sparks, open flames, ignition source  |
| 10.5. Incompatible materials             | : - strong oxidizing agents<br>- bases<br>- reducing materials<br>- acids                                 |
| 10.6. Hazardous decomposition products   | : Liquid :<br>On combustion or on thermal decomposition (pyrolysis) releases :<br>Carbon oxides (CO, CO2) |

### 11. TOXICOLOGICAL INFORMATION

#### 11.1. Information on toxicological effects

|                                   |                        |
|-----------------------------------|------------------------|
| <b>MATERIAL SAFETY DATA SHEET</b> | Page : 5               |
|                                   | Version : 4            |
| <b>LIGHT STICK</b>                | Date : 6/10/2010       |
|                                   | Supersedes : 23/3/2010 |
|                                   | <b>CYALUME</b>         |

## 11. TOXICOLOGICAL INFORMATION (continued)

|                           |  |
|---------------------------|--|
| Product as it is :        | : Not specifically applicable to the product (as is).  |
| Acute toxicity :          | : Liquid :<br>Harmful if swallowed<br>Butyl benzoate :<br>LD 50 oral (rat) : 735 mg/kg<br>(published data) |
| Local effects :           | : Liquid : Not irritative<br>(published data)  |
| Sensitization :           | : Liquid : No sensitizing effet reported   |
| Repeated dose toxicity :  | : No additional information available.   |
| Specific effects :        |  |
| - Carcinogenicity :       | : No additional information available.   |
| - Mutagenicity :          | : No additional information available.   |
| - Reproductive toxicity : | : No additional information available.   |

## 12. ECOLOGICAL INFORMATION

|  |  |
|--|--|
| Product as is :                          | : Not specifically applicable to the product (as is).  |
| 12.1. Toxicity                           | : Liquid :<br>No information available, however this product is not considered to present any particular risk for the aquatic environment. |
| 12.2. Persistence and degradability      | : No information available   |
| 12.3. Bioaccumulative potential          | : No information available   |
| 12.4. Mobility in soil                   | : No information available   |
| 12.5. Results of PBT and vPvB assessment | : No information available   |
| 12.6. Other adverse effects              | : No information available   |

## 13. DISPOSAL CONSIDERATIONS

|                               |  |
|-------------------------------|--|
| 13.1. Waste treatment methods |  |
| WASTE FROM PRODUCT :          |  |
| Destruction/Disposal :        | : Dispose of in accordance with relevant local regulations   |
| CONTAMINATED PACKAGING :      |  |
| Destruction/disposal :        | : Recycle following cleaning or dispose of at an authorised site   |
| NOTE :                        | : The user's attention is drawn to the possible existence of specific European, national or local regulations regarding disposal |

## 14. TRANSPORT INFORMATION

|                                  |                  |
|----------------------------------|------------------|
| 14.1. UN number                  | : Not restricted |
| 14.2. UN proper shipping name    | : Not restricted |
| 14.3. Transport hazard class(es) | : Not restricted |
| 14.4. Packing group              | : Not restricted |

|                                   |                        |
|-----------------------------------|------------------------|
| <b>MATERIAL SAFETY DATA SHEET</b> | Page : 6               |
|                                   | Version : 4            |
| <b>LIGHT STICK</b>                | Date : 6/10/2010       |
|                                   | Supersedes : 23/3/2010 |
|                                   | <b>CYALUME</b>         |

#### 14. TRANSPORT INFORMATION (continued)

- 14.5. Environmental hazards : Not restricted
- 14.6. Special precautions for user : No information available
- 14.7. Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code : No information available
- NOTE : : The above regulatory prescriptions are those valid on the date of publication of this sheet.  
Given the possible evolution of transport regulations for hazardous materials, in case the date of issue is older than 12 months, compared to the current one, it would be advisable to check their validity with your commercial agency

#### 15. REGULATORY INFORMATION

- 15.1. Safety, health and environmental regulations/legislation specific for the substance or mixture : No information available
- 15.2. Chemical Safety Assessment : No information available

#### 16. OTHER INFORMATION

- R phrases text of § 3 : : R5 : Heating may cause an explosion.  
R8 : Contact with combustible material may cause fire.  
R20/22 : Harmful by inhalation and if swallowed.  
R22 : Harmful if swallowed.  
R35 : Causes severe burns.  
R36/38 : Irritating to eyes and skin.
- H phrases text of § 3 : : H271 : May cause fire or explosion; strong oxidizer.  
H302 : Harmful if swallowed.  
H314 : Causes severe skin burns and eye damage.  
H315 : Causes skin irritation.  
H319 : Causes serious eye irritation.  
H332 : Harmful if inhaled.
- Restrictions on use : : This product must not be used for other applications that mentioned in §1.  
Comply with instructions for use (refer to technical sheet)
- \* Update : : This sheet was updated (refer to the date at the top of this page)  
This sheet has been revised completely (changes were not marked)
- Safety data sheet established by : : LISAM SERVICES - TELEGIS  
6 rue des Boucheries F-60400 NOYON  
www.reachelp.com  
Safety Made Easy with www.lisam.com

This sheet complements the technical sheets but does not replace them. The information given is based on our knowledge of the product, at the time of publication. It is given in good faith.

Besides, the attention of the user is drawn to the possible risk incurred by using the product for any other use than that for which it was intended.

In no way does this exempt the user from knowing and applying all the regulations controlling his activity. He alone will take on the responsibility for taking the precautions involved by the use of the product.

The aim of all the mandatory regulations mentioned is just to help the user to fulfil his obligations regarding the use of hazardous products.

This information must not be considered exhaustive. It does not exempt the user from ensuring that other obligations than those

#### CYALUME TECHNOLOGIES SAS

295, rue Mayor de Montricher ZI Les Milles - CS 40435 13591 AIX EN PROVENCE France

|                                   |                        |
|-----------------------------------|------------------------|
| <b>MATERIAL SAFETY DATA SHEET</b> | Page : 7               |
|                                   | Version : 4            |
| <b>LIGHT STICK</b>                | Date : 6/10/2010       |
|                                   | Supersedes : 23/3/2010 |
|                                   | <b>CYALUME</b>         |

mentioned could apply, related to the storage and use of the product, this being his sole responsibility.

---

**End of document**