1 Identification

- **Product identifier**
- **Trade name:** LENS BOND OPTICAL CEMENT TYPE DC-90
- **Article number:** S12301
- **Relevant identified uses of the substance or mixture and uses advised against**
  - No further relevant information available.
- **Application of the substance / the mixture** Laboratory chemicals
- **Details of the supplier of the safety data sheet**
  - **Manufacturer/Supplier:**
    - Electron Microscopy Sciences
    - 1560 Industry Road
    - USA-Hatfield, PA 19440
    - Tel: 215-412-8400  Fax: 215-412-8450
    - email: sgkck@aol.com
    - www.emsdiasum.com
  - **Information department:** Product safety department
  - **Emergency telephone number:**
    - ChemTrec 1-800-424-9300 Contract CCN7661
    - 1-703-527-3887

2 Hazard(s) identification

- **Classification of the substance or mixture**
  - **GHS02 Flame**
    - Flam. Liq. 3  H226  Flammable liquid and vapor.
  - **GHS08 Health hazard**
    - Carc. 2  H351  Suspected of causing cancer.
    - Repr. 2  H361  Suspected of damaging fertility or the unborn child.
    - STOT RE 1  H372  Causes damage to the hearing organs through prolonged or repeated exposure.
  - **GHS07**
    - Skin Irrit. 2  H315  Causes skin irritation.
    - Eye Irrit. 2A  H319  Causes serious eye irritation.

- **Label elements**
- **GHS label elements** The product is classified and labeled according to the Globally Harmonized System (GHS).
- **Hazard pictograms**
  - GHS02  GHS07  GHS08

- **Signal word** Danger

(Contd. on page 2)
Trade name: LENS BOND OPTICAL CEMENT TYPE DC-90

- **Hazard-determining components of labeling:**
  - **STYRENE**

- **Hazard statements**
  - Flammable liquid and vapor.
  - Causes skin irritation.
  - Causes serious eye irritation.
  - Suspected of causing cancer.
  - Suspected of damaging fertility or the unborn child.
  - Causes damage to the hearing organs through prolonged or repeated exposure.

- **Precautionary statements**
  - **Keep away from heat/sparks/open flames/hot surfaces. - No smoking.**
  - Use explosion-proof electrical/ventilating/lighting/equipment.
  - Do not breathe dust/fume/gas/mist/vapors/spray.
  - Wear protective gloves / eye protection / face protection.
  - Wear protective gloves.
  - Wear eye protection / face protection.
  - Ground/bond container and receiving equipment.
  - Keep container tightly closed.
  - Use only non-sparking tools.
  - Take precautionary measures against static discharge.
  - Wash thoroughly after handling.
  - Do not eat, drink or smoke when using this product.
  - Obtain special instructions before use.
  - Do not handle until all safety precautions have been read and understood.
  - **IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower.**
  - **If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.**
  - **Specific treatment (see on this label).**
  - **IF exposed or concerned: Get medical advice/attention.**
  - **If skin irritation occurs: Get medical advice/attention.**
  - **If eye irritation persists: Get medical advice/attention.**
  - **Get medical advice/attention if you feel unwell.**
  - **In case of fire: Use for extinction: CO2, powder or water spray.**
  - **Take off contaminated clothing and wash it before reuse.**
  - **Store locked up.**
  - **Store in a well-ventilated place. Keep cool.**
  - **Dispose of contents/container in accordance with local/regional/national/international regulations.**

- **Classification system:**
  - **NFPA ratings (scale 0 - 4)**
    - Health = 3
    - Fire = 2
    - Reactivity = 0
  - **HMIS-ratings (scale 0 - 4)**
    - Health = *3
    - Fire = 2
    - Reactivity = 0

- **Other hazards**
  - **Results of PBT and vPvB assessment**
  - **PBT: Not applicable.**
Trade name: LENS BOND OPTICAL CEMENT TYPE DC-90

- vPvB: Not applicable.

3 Composition/information on ingredients
- Chemical characterization: Mixtures
- Description: Mixture of the substances listed below with nonhazardous additions.
- Dangerous components:
  - 100-42-5 STYRENE 25-50%

4 First-aid measures
- Description of first aid measures
  - General information:
    Symptoms of poisoning may even occur after several hours; therefore medical observation for at least 48 hours after the accident.
  - After inhalation: In case of unconsciousness place patient stably in side position for transportation.
  - After skin contact: Immediately wash with water and soap and rinse thoroughly.
  - After eye contact:
    Rinse opened eye for several minutes under running water. If symptoms persist, consult a doctor.
  - After swallowing: If symptoms persist consult doctor.
- Information for doctor:
  - Most important symptoms and effects, both acute and delayed: No further relevant information available.
  - Indication of any immediate medical attention and special treatment needed: No further relevant information available.

5 Fire-fighting measures
- Extinguishing media
  - Suitable extinguishing agents: CO2, sand, extinguishing powder. Do not use water.
  - For safety reasons unsuitable extinguishing agents: Water with full jet
  - Special hazards arising from the substance or mixture: No further relevant information available.
- Advice for firefighters
- Protective equipment: No special measures required.

6 Accidental release measures
- Personal precautions, protective equipment and emergency procedures
  - Wear protective equipment. Keep unprotected persons away.
- Environmental precautions: Do not allow to enter sewers/surface or ground water.
- Methods and material for containment and cleaning up:
  - Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust).
  - Dispose contaminated material as waste according to item 13.
  - Ensure adequate ventilation.
  - Do not flush with water or aqueous cleansing agents
- Reference to other sections
  - See Section 7 for information on safe handling.
  - See Section 8 for information on personal protection equipment.
7 Handling and storage

- Handling:
- Precautions for safe handling
  Ensure good ventilation/exhaustion at the workplace.
  Open and handle receptacle with care.
  Prevent formation of aerosols.
- Information about protection against explosions and fires:
  Keep ignition sources away - Do not smoke.
  Protect from heat.
  Protect against electrostatic charges.
  Keep respiratory protective device available.
- Conditions for safe storage, including any incompatibilities
- Storage:
  Requirements to be met by storerooms and receptacles: No special requirements.
  Information about storage in one common storage facility: Not required.
  Further information about storage conditions:
    Keep receptacle tightly sealed.
    Protect from heat and direct sunlight.
- Specific end use(s) No further relevant information available.

8 Exposure controls/personal protection

- Additional information about design of technical systems: No further data; see item 7.
- Control parameters

<table>
<thead>
<tr>
<th>Component</th>
<th>Limit Values</th>
</tr>
</thead>
<tbody>
<tr>
<td>100-42-5 STYRENE</td>
<td></td>
</tr>
<tr>
<td>PEL</td>
<td>Long-term value: 100 ppm</td>
</tr>
<tr>
<td>Ceiling limit value: 200; 600* ppm</td>
<td></td>
</tr>
<tr>
<td>*5-min peak in any 3 hrs</td>
<td></td>
</tr>
<tr>
<td>REL</td>
<td>Short-term value: 425 mg/m³, 100 ppm</td>
</tr>
<tr>
<td>Long-term value: 215 mg/m³, 50 ppm</td>
<td></td>
</tr>
<tr>
<td>TLV</td>
<td>Short-term value: 170 mg/m³, 40 ppm</td>
</tr>
<tr>
<td>Long-term value: 85 mg/m³, 20 ppm</td>
<td></td>
</tr>
<tr>
<td>BEI</td>
<td></td>
</tr>
</tbody>
</table>

- Ingredients with biological limit values:

<table>
<thead>
<tr>
<th>Component</th>
<th>Limit Values</th>
</tr>
</thead>
<tbody>
<tr>
<td>100-42-5 STYRENE</td>
<td></td>
</tr>
<tr>
<td>BEI</td>
<td>400 mg/g creatinine</td>
</tr>
<tr>
<td>Medium: urine</td>
<td></td>
</tr>
<tr>
<td>Time: end of shift</td>
<td></td>
</tr>
<tr>
<td>Parameter: Mandelic acid plus phenylglyoxylic acid (nonspecific)</td>
<td></td>
</tr>
<tr>
<td>0.2 mg/L</td>
<td></td>
</tr>
<tr>
<td>Medium: venous blood</td>
<td></td>
</tr>
<tr>
<td>Time: end of shift</td>
<td></td>
</tr>
<tr>
<td>Parameter: Styrene (semi-quantitative)</td>
<td></td>
</tr>
</tbody>
</table>

- Additional information: The lists that were valid during the creation were used as basis.
Trade name: LENS BOND OPTICAL CEMENT TYPE DC-90

- Exposure controls
- Personal protective equipment:
- General protective and hygienic measures:
  Keep away from foodstuffs, beverages and feed.
  Immediately remove all soiled and contaminated clothing.
  Wash hands before breaks and at the end of work.
  Store protective clothing separately.
  Avoid contact with the eyes and skin.
- Breathing equipment:
  In case of brief exposure or low pollution use respiratory filter device. In case of intensive or longer exposure use respiratory protective device that is independent of circulating air.
- Protection of hands:
  Protective gloves
  The glove material has to be impermeable and resistant to the product/ the substance/ the preparation. Due to missing tests no recommendation to the glove material can be given for the product/ the preparation/ the chemical mixture. Selection of the glove material on consideration of the penetration times, rates of diffusion and the degradation
- Material of gloves
  The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer. As the product is a preparation of several substances, the resistance of the glove material can not be calculated in advance and has therefore to be checked prior to the application.
- Penetration time of glove material
  The exact break through time has to be found out by the manufacturer of the protective gloves and has to be observed.
- Eye protection:
  Tightly sealed goggles

9 Physical and chemical properties

- Information on basic physical and chemical properties
  - General Information
    - Appearance:
      - Form: Liquid
      - Color: Clear
      - Odor: Sweetish
      - Odour threshold: Not determined.
      - pH-value: Not determined.
    - Change in condition
      - Melting point/Melting range: Undetermined.
      - Boiling point/Boiling range: 150 °C (302 °F)
    - Flash point: 50 °C (122 °F)
    - Flammability (solid, gaseous): Not flammable.
Trade name: LENS BOND OPTICAL CEMENT TYPE DC-90

- Ignition temperature: 480 °C (896 °F)
- Decomposition temperature: Not determined.
- Auto igniting: Product is not selfigniting.
- Danger of explosion: Product is not explosive. However, formation of explosive air/vapor mixtures are possible.

- Explosion limits:
  - Lower: 1.2 Vol %
  - Upper: 8.9 Vol %
- Vapor pressure at 20 °C (68 °F): 6 hPa (5 mm Hg)
- Density: Not determined.
- Relative density: Not determined.
- Vapour density: Not determined.
- Evaporation rate: Not determined.

- Solubility in / Miscibility with Water: Not miscible or difficult to mix.
- Partition coefficient (n-octanol/water): Not determined.

- Viscosity:
  - Dynamic: Not determined.
  - Kinematic: Not determined.
- Solvent content:
  - Organic solvents: 40.0 %
  - VOC content: 40.0 %
  - Other information: 400.0 g/l / 3.34 lb/gl

10 Stability and reactivity

- Reactivity
- Chemical stability
- Thermal decomposition / conditions to be avoided: No decomposition if used according to specifications.
- Possibility of hazardous reactions: No dangerous reactions known.
- Conditions to avoid: No further relevant information available.
- Incompatible materials: No further relevant information available.
- Hazardous decomposition products: No dangerous decomposition products known.

11 Toxicological information

- Information on toxicological effects
- Acute toxicity:
  - LD/LC50 values that are relevant for classification:
    100-42-5 STYRENE
    Oral LD50 5000 mg/kg (rat)
    Inhalative LC50/4 h 24 mg/l (rat)
- Primary irritant effect:
  - on the skin: Irritant to skin and mucous membranes.
Trade name: LENS BOND OPTICAL CEMENT TYPE DC-90

- on the eye: Irritating effect.
- Sensitization: No sensitizing effects known.
- Additional toxicological information:
  The product shows the following dangers according to internally approved calculation methods for preparations:
  Irritant

- Carcinogenic categories

  - IARC (International Agency for Research on Cancer)
    | 100-42-5 | STYRENE | 2B |

  - NTP (National Toxicology Program)
    | 100-42-5 | STYRENE | R |

  - OSHA-Ca (Occupational Safety Health Administration)
    None of the ingredients is listed.

12 Ecological information

- Toxicity
  - Aquatic toxicity: No further relevant information available.
  - Persistence and degradability No further relevant information available.
  - Behavior in environmental systems:
    - Bioaccumulative potential No further relevant information available.
    - Mobility in soil No further relevant information available.
  - Additional ecological information:
    - General notes:
      Water hazard class 2 (Self-assessment): hazardous for water
      Do not allow product to reach ground water, water course or sewage system.
      Danger to drinking water if even small quantities leak into the ground.
  - Results of PBT and vPvB assessment
    - PBT: Not applicable.
    - vPvB: Not applicable.
    - Other adverse effects No further relevant information available.

13 Disposal considerations

- Waste treatment methods
  - Recommendation:
    Must not be disposed of together with household garbage. Do not allow product to reach sewage system.
- Uncleaned packagings:
  - Recommendation: Disposal must be made according to official regulations.

14 Transport information

- UN-Number
  - DOT, ADR, IMDG, IATA UN3269

- UN proper shipping name
  - DOT Polyester resin kit mixture
  - ADR 3269 Polyester resin kit mixture
  - IMDG, IATA POLYESTER RESIN KIT mixture
### Transport hazard class(es)
- **DOT**
  - Class 3 Flammable liquids
  - Label 3

### ADR, IMDG, IATA
- **Class** 3 Flammable liquids
- **Label** 3
- **Packing group** III

### Environmental hazards:
- **Marine pollutant**: No
- **Special precautions for user**: Warning: Flammable liquids
- **Danger code (Kemler)**: 39
- **EMS Number**: F-E,S-D

### Transport/Additional information:
- **DOT**
  - **Quantity limitations**
    - On passenger aircraft/rail: 60 L
    - On cargo aircraft only: 220 L

### ADR
- **Excepted quantities (EQ)**: Code: E0
  - Not permitted as Excepted Quantity

### IMDG
- **Limited quantities (LQ)**: 5L
  - **Excepted quantities (EQ)**: Code: E1
    - Maximum net quantity per inner packaging: 30 ml
    - Maximum net quantity per outer packaging: 1000 ml

### UN "Model Regulation":
- UN3269, Polyester resin kit mixture, 3, III

### 15 Regulatory information
- **Safety, health and environmental regulations/legislation specific for the substance or mixture**
  - **Sara**
    - **Section 355 (extremely hazardous substances):**
      - None of the ingredients is listed.
Trade name: LENS BOND OPTICAL CEMENT TYPE DC-90

- Section 313 (Specific toxic chemical listings):
  
<table>
<thead>
<tr>
<th>Chemical ID</th>
<th>Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>100-42-5</td>
<td>STYRENE</td>
</tr>
</tbody>
</table>

- TSCA (Toxic Substances Control Act):
  
<table>
<thead>
<tr>
<th>Chemical ID</th>
<th>Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>100-42-5</td>
<td>STYRENE</td>
</tr>
</tbody>
</table>

- Proposition 65
  
  - Chemicals known to cause cancer:
    None of the ingredients is listed.
  
  - Chemicals known to cause reproductive toxicity for females:
    None of the ingredients is listed.

  - Chemicals known to cause reproductive toxicity for males:
    None of the ingredients is listed.

  - Chemicals known to cause developmental toxicity:
    None of the ingredients is listed.

- Carcinogenic categories
  
  - EPA (Environmental Protection Agency)
    None of the ingredients is listed.

  - TLV (Threshold Limit Value established by ACGIH)
    
    | Chemical ID | Name   | Value |
    |-------------|--------|-------|
    | 100-42-5    | STYRENE| A4    |

  - NIOSH-Ca (National Institute for Occupational Safety and Health)
    None of the ingredients is listed.

- GHS label elements
  The product is classified and labeled according to the Globally Harmonized System (GHS).

- Hazard pictograms
  
  ![GHS02](image1) ![GHS07](image2) ![GHS08](image3)

- Signal word **Danger**

- Hazard-determining components of labeling:
  STYRENE

- Hazard statements
  Flammable liquid and vapor.
  Causes skin irritation.
  Causes serious eye irritation.
  Suspected of causing cancer.
  Suspected of damaging fertility or the unborn child.
  Causes damage to the hearing organs through prolonged or repeated exposure.

- Precautionary statements
  Keep away from heat/sparks/open flames/hot surfaces. - No smoking.
  Use explosion-proof electrical/ventilating/lighting/equipment.
  Do not breathe dust/fume/gas/mist/vapors/spray.
  Wear protective gloves / eye protection / face protection.
  Wear protective gloves.
  Wear eye protection / face protection.
  Ground/bond container and receiving equipment.
  Keep container tightly closed.
  Use only non-sparking tools.

(Contd. on page 10)
Take precautionary measures against static discharge. 
Wash thoroughly after handling. 
Do not eat, drink or smoke when using this product. 
Obtain special instructions before use. 
Do not handle until all safety precautions have been read and understood. 
IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower. 
If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. 
Continue rinsing. 
Specific treatment (see on this label). 
IF exposed or concerned: Get medical advice/attention. 
If skin irritation occurs: Get medical advice/attention. 
If eye irritation persists: Get medical advice/attention. 
Get medical advice/attention if you feel unwell. 
In case of fire: Use for extinction: CO₂, powder or water spray. 
Take off contaminated clothing and wash it before reuse. 
Store locked up. 
Store in a well-ventilated place. Keep cool. 
Dispose of contents/container in accordance with local/regional/national/international regulations. 
• **Chemical safety assessment:** A Chemical Safety Assessment has not been carried out.

### 16 Other information

- 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.

- **Date of preparation / last revision** 09/22/2015 / -

- **Abbreviations and acronyms:**
  - ADR: Accord européen sur le transport des marchandises dangereuses par Route (European Agreement concerning the International Carriage of Dangerous Goods by Road)
  - IMDG: International Maritime Code for Dangerous Goods
  - DOT: US Department of Transportation
  - IATA: International Air Transport Association
  - ACGIH: American Conference of Governmental Industrial Hygienists
  - EINECS: European Inventory of Existing Commercial Chemical Substances
  - ELINCS: European List of Notified Chemical Substances
  - CAS: Chemical Abstracts Service (division of the American Chemical Society)
  - NFPA: National Fire Protection Association (USA)
  - HMIS: Hazardous Materials Identification System (USA)
  - VOC: Volatile Organic Compounds (USA, EU)
  - LC50: Lethal concentration, 50 percent
  - LD50: Lethal dose, 50 percent
  - Flam. Liq. 3: Flammable liquids, Hazard Category 3
  - Skin Irrit. 2: Skin corrosion/irritation, Hazard Category 2
  - Eye Irrit. 2A: Serious eye damage/eye irritation, Hazard Category 2A
  - Carc. 2: Carcinogenicity, Hazard Category 2
  - Rep. 2: Reproductive toxicity, Hazard Category 2
  - STOT RE 1: Specific target organ toxicity - Repeated exposure, Hazard Category 1