1 Identification

· Product identifier
· Trade name: LENS BOND OPTICAL CEMENT TYPE F-65
· Article number: S12200
· 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: sgkcek@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)
· 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
    Health = *3
    FIRE
    Fire = 2
    REACTIVITY
    Reactivity = 0

  · Other hazards
  · Results of PBT and vPvB assessment
  · PBT: 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
  · Components with limit values that require monitoring at the workplace:

  
  **100-42-5 STYRENE**

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

· Ingredients with biological limit values:

  **100-42-5 STYRENE**

<table>
<thead>
<tr>
<th>Limit</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>BEI</td>
<td>400 mg/g creatinine</td>
</tr>
<tr>
<td></td>
<td>Medium: urine</td>
</tr>
<tr>
<td></td>
<td>Time: end of shift</td>
</tr>
<tr>
<td></td>
<td>Parameter: Mandelic acid plus phenylglyoxylic acid (nonspecific)</td>
</tr>
<tr>
<td></td>
<td>0.2 mg/L</td>
</tr>
<tr>
<td></td>
<td>Medium: venous blood</td>
</tr>
<tr>
<td></td>
<td>Time: end of shift</td>
</tr>
<tr>
<td></td>
<td>Parameter: Styrene (semi-quantitative)</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 F-65

· 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: Colorless
· Odor: Characteristic
· 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 F-65

- **Ignition temperature:** 480 °C (896 °F)
- **Decomposition temperature:** Not determined.
- **Auto igniting:** Product is not self-igniting.
- **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 at 20 °C (68 °F):** 1.09 g/cm³ (9.096 lbs/gal)
    - **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** 436.0 g/l / 3.64 lb/gl
- **Other information** No further relevant information available.

### 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:** Irritant to skin and mucous membranes.
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
**Trade name:** LENS BOND OPTICAL CEMENT TYPE F-65

<table>
<thead>
<tr>
<th><strong>Transport hazard class(es)</strong></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>DOT</strong></td>
<td></td>
</tr>
<tr>
<td>· <strong>Class</strong></td>
<td>3 Flammable liquids</td>
</tr>
<tr>
<td>· <strong>Label</strong></td>
<td>3</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>ADR, IMDG, IATA</strong></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>· <strong>Class</strong></td>
<td>3 Flammable liquids</td>
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<tr>
<td>· <strong>Label</strong></td>
<td>3</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Packing group</strong></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>DOT, ADR, IMDG, IATA</strong></td>
<td>III</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Environmental hazards:</strong></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Marine pollutant:</strong></td>
<td>No</td>
</tr>
<tr>
<td>· <strong>Special precautions for user</strong></td>
<td>Warning: Flammable liquids</td>
</tr>
<tr>
<td>· <strong>Danger code (Kemler):</strong></td>
<td>39</td>
</tr>
<tr>
<td>· <strong>EMS Number:</strong></td>
<td>F-E,S-D</td>
</tr>
</tbody>
</table>

| **Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code** | Not applicable. |

<table>
<thead>
<tr>
<th><strong>Transport/Additional information:</strong></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>DOT</strong></td>
<td></td>
</tr>
<tr>
<td>· <strong>Quantity limitations</strong></td>
<td>On passenger aircraft/rail: 60 L On cargo aircraft only: 220 L</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>ADR</strong></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>· <strong>Excepted quantities (EQ)</strong></td>
<td>Code: E0 Not permitted as Excepted Quantity</td>
</tr>
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<table>
<thead>
<tr>
<th><strong>IMDG</strong></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>· <strong>Limited quantities (LQ)</strong></td>
<td>5L</td>
</tr>
<tr>
<td>· <strong>Excepted quantities (EQ)</strong></td>
<td>Code: E1 Maximum net quantity per inner packaging: 30 ml Maximum net quantity per outer packaging: 1000 ml</td>
</tr>
</tbody>
</table>

| **UN "Model Regulation":** | UN3269, Polyester resin kit mixture, 3, III |

### 15 Regulatory information

<table>
<thead>
<tr>
<th><strong>Safety, health and environmental regulations/legislation specific for the substance or mixture</strong></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Sara</strong></td>
<td></td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Section 355 (extremely hazardous substances):</strong></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>None of the ingredients is listed.</td>
<td></td>
</tr>
</tbody>
</table>
Safety Data Sheet
acc. to OSHA HCS

Trade name: LENS BOND OPTICAL CEMENT TYPE F-65

- Section 313 (Specific toxic chemical listings):
  100-42-5 STYRENE

- TSCA (Toxic Substances Control Act):
  100-42-5 STYRENE

- 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)
    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  GHS07  GHS08

- 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.
Trade name: LENS BOND OPTICAL CEMENT TYPE F-65

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.

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:
  
  Implicit: 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
  Repro. 2: Reproductive toxicity, Hazard Category 2
  STOT RE 1: Specific target organ toxicity - Repeated exposure, Hazard Category 1