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

1.1 Product identifier
   Trade Name: Brandenburger Liner
   Article No.: n.av.
   Preparation No.: n.av.
   Registration No.: n.av.

1.2 Relevant identified uses of the substance or mixture and uses advised against
   Use: Sewer rehabilitation

1.3 Details of the supplier of the safety data sheet
   1.3.1 Address of the Company / Supplier:
       Brandenburger Liner GmbH & Co. KG, Taubensuhlstrasse 6, D- 76829 Landau
       Telephone: +49 (0)6341 5104-0, Telefax: +49 (0)6341 5104-155, E-Mail: info@brandenburger.de
   1.3.2 Responsible for the data sheet:
       CoSiChem AG, Ernst-Lemmer-Straße 27, D - 35041 Marburg, info@cosichem.de

1.4 Emergency telephone number
   Emergency - Telephone of Company / Undertaking
   Information Centre Specialising in Symptoms of Poisoning
   Telephone: +49 (0)6341 5104-0 (8:30 – 16.30)
   Telephone: +44 870 600 6266

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture
   Classification and labelling according to Directive 1272/2008/EC:
   Skin Irrit. 2; H315 / Eye Irrit. 2; H319 / Acute Tox. 4; H332 / Repr. 2; H361d / STOT RE 1 H372

2.2 Label elements
   Classification according to 1272/2008/EC: Yes.
   Applicable Exemptions: No.
   Signal word(s): Danger
   Component(s): contains Styrene
   Hazard pictogram(s):

   H - Phrases:
   H315: Causes skin irritation.
   H319: Causes serious eye irritation.
   H332: Harmful if inhaled.
   H372: Causes damage to organs <acoustic organ> through prolonged or repeated exposure.
   H361d: Suspected of damaging the unborn child.

   P - Phrases:
   P201: Obtain special instructions before use.
   P202: Do not handle until all safety precautions have been read and understood.
   P260: Do not breathe dust/fume/gas/mist/vapours/spray.
   P280: Wear protective gloves/protective clothing/eye protection/face protection.
   P271: Use only outdoors or in a well-ventilated area.
   P263: Avoid contact during pregnancy/while nursing.
   P501: Dispose of contents/container to hazardous or special waste collection point.

   Additional Markings:
   EUH208: Contains phenyl bis(2,4,6-trimethylbenzoyl)-phosphine oxide. May produce an allergic reaction.
   The above mentioned labelling is valid for distribution to industrial user.

2.3 Other hazards
   This mixture contains no substances which are assessed to be PBT or vPvB.
**SECTION 3: Composition/information on ingredients**

### 3.1 Substances
n. ap.

### 3.2 Mixtures
Glass fibre impregnated with polyester/vinylester resin solution in styrene (resins in solution, not cured)

#### Dangerous Ingredients:

<table>
<thead>
<tr>
<th>CAS-No.</th>
<th>Index-No.</th>
<th>EC-No.</th>
<th>Material</th>
<th>m% - range</th>
<th>Symbol</th>
<th>H-phrases</th>
</tr>
</thead>
<tbody>
<tr>
<td>100-42-5</td>
<td>601-028-00-0</td>
<td>202-851-5</td>
<td>Styrene</td>
<td>10 - 30%</td>
<td>GHS02</td>
<td>H226 H332 H315</td>
</tr>
<tr>
<td>24650-42-8</td>
<td>n.av.</td>
<td>246-386-6</td>
<td>2,2-Dimethoxy-1,2-diphenyleth-an-1-one</td>
<td>0,1 - 0,25%</td>
<td>GHS09</td>
<td>H400 H410</td>
</tr>
<tr>
<td>162881-26-7</td>
<td>015-189-00-5</td>
<td>423-340-5</td>
<td>phenyl bis(2,4,6-trimethylbenzoyl)-phosphine oxide</td>
<td>0,1 - 1%</td>
<td>GHS07</td>
<td>H317 H413</td>
</tr>
</tbody>
</table>

Text of H-phrases: see section 16

**SECTION 4: First aid measures**

### 4.1 Description of first aid measures

#### 4.1.1 Inhalation:
Move to fresh air in case of accidental inhalation of fumes from overheating or combustion.
Consult a physician. Show this safety data sheet to the doctor in attendance.

#### 4.1.2 Skin Contact:
Resins in solution: Wash off immediately with soap and plenty of water.
In the case of skin irritation or allergic reactions see a physician.

#### 4.1.3 Eye Contact:
Resins in solution: Call a physician immediately.
In case of eye contact, remove contact lens and rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes.

#### 4.1.4 Ingestion:
n. ap.

### 4.2 Most important symptoms and effects, both acute and delayed
Resin in in solution: Inhalation may provoke the following symptoms: headache nausea dizziness.
Inhalation of vapours is irritating to the respiratory system, may cause throat pain and cough.

### 4.3 Indication of any immediate medical attention and special treatment needed
Treat symptomatically.

**SECTION 5: Firefighting measures**

### 5.1 Extinguishing media

#### 5.1.1 Suitable Extinguishing Media:
Use dry chemical, CO₂, water spray or "alcohol" foam.

#### 5.1.2 Extinguishing Media to Avoid:
High volume water jet.

### 5.2 Special hazards arising from the substance or mixture
In the event of fire the following can be released: Carbon oxides

### 5.3 Advice for firefighters

#### 5.3.1 Special Protective Equipment:
Wear positive pressure self-contained breathing apparatus. Wear full protective clothing.

#### 5.3.2 Additional Information:
Polymerisation occurs when exposed to white light, ultraviolet light or heat.
In the event of fire, cool tanks with water spray. Collect contaminated fire extinguishing water separately. This must not be discharged into drains. Fire residues and contaminated fire extinguishing water must be disposed of in accordance with local regulations.
SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures
   See chapter 8.2.2
   In order to avoid inhalation of sanding dust, all sanding must be done wearing adequate respirator.

6.2 Environmental precautions
   Do not contaminate water.

6.3 Methods and material for containment and cleaning up
   Use mechanical handling equipment.
   If recycling is not practicable, dispose of in compliance with local regulations.

6.4 Reference to other sections
   None.

SECTION 7: Handling and storage

7.1 Precautions for safe handling
   7.1.1 Precautions for Safe Handling:
   When using, do not eat, drink or smoke. Take off all contaminated clothing immediately.
   Wash hands before breaks and at the end of workday.

   7.1.2 Precautions in Case of Fire and Explosion:
   Keep away from sources of ignition - No smoking.

7.2 Conditions for safe storage, including any incompatibilities
   7.2.1 Storage Instructions:
   Store in original container. Keep container tightly closed in a cool place.
   Keep in a dry place. Protect against light.

   7.2.2 Store away from:
   Do not store together with oxidizing agents.

   7.2.3 Further Information on Storage Conditions:
   Keep at temperatures between 5 and 30°C.

7.3 Specific end use(s)
   n.av.

SECTION 8: Exposure controls/personal protection

8.1 Control parameters
   Material | Limit Value
   Styrene | 20 ppm | 86 mg/m³

8.2 Exposure controls
   8.2.1 Appropriate engineering controls
   Provide appropriate exhaust ventilation at machinery.

8.2.2 Individual protection measures
   8.2.2a Respiratory Protection:
   In order to avoid inhalation of sanding dust, all sanding must be done wearing adequate respirator. Multi-purpose combination filter:

   8.2.2b Hand Protection:
   Impervious butyl rubber gloves break through time > 6h
   Please observe the instructions regarding permeability and breakthrough time which are provided by the supplier of the gloves. Also take into consideration the specific local conditions under which the product is used, such as the danger of cuts, abrasion, and the contact time.

   8.2.2c Eye Protection:
   Tightly fitting safety goggles

   8.2.2d Skin Protection:
   Lightweight protective clothing

   8.2.2e Further Information:
   Observe wearing time limits:

8.2.3 Environmental exposure controls:
   n.av.
SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

9.1.1 Form: Resins in solution  Colour: light yellow  Odour: characteristic

9.1.2 pH-value, undiluted: n.a.p., pH-value, 1% aqueous solution: n.a.v.
9.1.3 Boiling point / Boiling - range (°C): 146 (Styrene), Melting point / Melting range (°C): n.a.v.
9.1.4 Flash point (°C): 34 (Styrene) product does not support combustion, closed cup
9.1.5 Flammability (EEC A10/A13): None.
9.1.6 Ignition temperature (°C): 490 (Styrene)
9.1.8 Oxidising properties: No.
9.1.9 Ignition temperature (°C): 490 (Styrene)
9.1.10 Explosion limits (Vol.%): lower: n.a.v., upper: n.a.v.
9.1.11 Vapour pressure / Vapour density (Air = 1): 10 mbar (20°C) / 50 mbar (50°C) / n.a.v.
9.1.12 Density (g/ml): 1.4
9.1.13 Solubility (in Water): Immiscible
9.1.15 Viscosity: n.a.v.
9.1.16 Solvent content (m %): 10 - 30
9.1.17 Thermal decomposition (°C): n.a.v.
9.1.18 Evaporation rate: n.a.v.

9.2 Other information: n.a.v.

SECTION 10: Stability and reactivity

10.1 Reactivity: None.
10.2 Chemical stability: Stable under normal conditions.
10.3 Possibility of hazardous reactions: No dangerous reaction known under conditions of normal use.
10.4 Conditions to avoid: Keep away from heat.
10.5 Incompatible materials: Polymerisation occurs when exposed to white light, ultraviolet light strong oxidizing agents or heat. Polymerization is a highly exothermic reaction.
10.6 Hazardous decomposition products: No decomposition if stored and applied as directed.

SECTION 11: Toxicological information

11.1 Information on toxicological effects

11.1.1 Substances

11.1.2 Mixtures

Acute Toxicity:
Inhalation: Styrene: LC50/inhalation/4h/rat = 10 - 20 mg / l
Ingestion: Styrene: LD50/oral/rat > 5000 mg / kg
Skin Contact: n.a.v.
Irritation / corrosion (to skin / eye): Causes skin irritation. Causes serious eye irritation.
Sensitisation: May cause an allergic skin reaction.
Carcinogenicity: n.a.v.
Mutagenicity: n.a.v.
Teratogenicity: Repr. 2
Narcotic Effects: Inhalation of high vapour concentrations can cause CNS-depression and narcosis.
11.1.3 – Practical Experience
11.1.12 n.av.
11.1.13 Practical Experience
Observations relevant for classification:
None.
Further Observations:
None.
Classification of the preparation has been done by calculation in accordance with EEC directives.

SECTION 12: Ecological information
12.1 Toxicity
An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.

2,2-Dimethoxy-1,2-diphenylethan-1-one
Toxicity to fish LC_{50} (96h): 6 mg / L
Toxicity to daphnia EC_{50} (24h): 26 mg / L

12.2 Persistence and degradability
The methods for determining the biological degradability are not applicable to inorganic substances.

12.3 Bioaccumulative potential
n.av.

12.4 Mobility in soil
n.av.

12.5 Results of PBT and vPvB assessment
n.av.

12.6 Other adverse effects
12.6.1 COD-Value, mg/g: n.av.
12.6.2 BOD5-Value, mg/g: n.av.
12.6.3 AOX-Remarks: n.ap.
12.6.4 Significant Components: 2,2-Dimethoxy-1,2-diphenylethan-1-one
12.6.5 Other adverse effects: No.

SECTION 13: Disposal considerations
13.1 Waste treatment methods
13.1.1 Recommendation: D 10
Waste - Code - No.:
The Waste code should be assigned in discussion
between the user, the producer and the waste
disposal company.

In addition comply with the regional authorities.

13.2 Contaminated Packaging
13.2.1 Recommendation: Wash with suitable cleaner. Otherwise as described under Residues.
13.2.2 Safe Handling: As described under Residues.
### SECTION 14: Transport information

<table>
<thead>
<tr>
<th>ADR</th>
<th>IMDG</th>
<th>IATA</th>
</tr>
</thead>
<tbody>
<tr>
<td>Not a dangerous substance as defined in the above regulations.</td>
<td>Not a dangerous substance as defined in the above regulations.</td>
<td>Not a dangerous substance as defined in the above regulations.</td>
</tr>
</tbody>
</table>

#### 14.1 UN number

#### 14.2 UN proper shipping name

#### 14.3 Transport hazard class(es)

#### 14.4 Packing group

#### 14.5 Environmental hazards

#### 14.6 Special precautions for user

##### Transport category:
Classification Code:
Hazard - No.:
LQ:

##### Packing Instructions
( Passenger )
( Cargo )

#### 14.7 Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code

### SECTION 15: Regulatory information

15.1 **Safety, health and environmental regulations/legislation specific for the substance or mixture**
n.av.

15.2 **Chemical safety assessment**:
A chemical safety assessment has not been carried out.

### SECTION 16: Other information

**Text of R / H phrases mentioned in Section 3**

- H315: Causes skin irritation.
- H317: May cause an allergic skin reaction.
- H319: Causes serious eye irritation.
- H332: Harmful if inhaled.
- H361d: Suspected of damaging the unborn child.
- H372: Causes damage to organs <or state all organs affected, if known> through prolonged or repeated exposure <state route of exposure if it is conclusively proven that no other routes of exposure cause the hazard>.
- H400: Very toxic to aquatic life.
- H410: Very toxic to aquatic life with long lasting effects.
- H413: May cause long lasting harmful effects to aquatic life.

This datasheet has been compiled in accordance with EU regulation 453/2010. The statements in this Material Safety Data Sheet were made to the best of our knowledge and are as accurate as possible. They are given for information only. They do not constitute a contractual guarantee of a product's properties. They must neither be altered nor transferred to other products.

Prepared by: CoSiChem AG, Ernst-Lemmer-Straße 23, D - 35041 Marburg, info@cosichem.de, +49-6421-886563

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