Material Safety Data Sheet
TempSpan® Transparent Temporary Cement - Catalyst

1. Identification of the material and supplier

Names
Product name: TempSpan® Transparent Temporary Cement - Catalyst
ADG: UN3077
Manufacturer: Pentron Clinical
1717 West Collins Avenue
Orange, CA 92867-5422
Telephone no.: 1-203-265-7397, Toll Free: 1-800-551-0283

Emergency telephone number:
CHEMTREC® (24 hours) U.S.: 1-800-424-9300
International: +1-703-527-3887

Uses
Area of application: Professional applications.
Material uses: Dental product (Kit)
Product type: Paste.

2. Hazards identification

Classification:
Repr. Cat. 2; R61
Repr. Cat. 3; R62
Xn; R20
Xi; R41, R37/38
R52/53

Risk phrases:
R61- May cause harm to the unborn child.
R62- Possible risk of impaired fertility.
R20- Also harmful by inhalation.
R41- Risk of serious damage to eyes.
R37/38- Irritating to respiratory system and skin.
R52/53- Harmful to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

Safety phrases:
S53- Avoid exposure - obtain special instructions before use.
S26- In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.
S36/37/39- Wear suitable protective clothing, gloves and eye/face protection.

Statement of hazardous/dangerous nature:
HAZARDOUS SUBSTANCE. DANGEROUS GOODS.

Health effects are based on the uncured material.

3. Composition/information on ingredients

Mixture:
Yes.

<table>
<thead>
<tr>
<th>Ingredient name</th>
<th>CAS number</th>
<th>Concentration</th>
</tr>
</thead>
<tbody>
<tr>
<td>Silica, amorphous, fumed, cryst.-free</td>
<td>112945-52-5</td>
<td>10-30</td>
</tr>
<tr>
<td>dibutyl phthalate</td>
<td>84-74-2</td>
<td>10-30</td>
</tr>
<tr>
<td>α,α-dimethylbenzyl hydroperoxide</td>
<td>80-15-9</td>
<td>&lt;10</td>
</tr>
<tr>
<td>cumene</td>
<td>98-82-8</td>
<td>&lt;10</td>
</tr>
<tr>
<td>Butylated hydroxytoluene</td>
<td>128-37-0</td>
<td>&lt;10</td>
</tr>
</tbody>
</table>

Other ingredients, determined not to be hazardous according to Safe Work Australia criteria, and not dangerous according to the ADG Code, make up the product concentration to 100%.
3. Composition/information on ingredients

There are no additional ingredients present which, within the current knowledge of the supplier and in the concentrations applicable, are classified as hazardous to health or the environment and hence require reporting in this section.

4. First-aid measures

**First-aid measures**

**Inhalation**
No special measures required. If inhaled, remove to fresh air. Get medical attention if symptoms occur.

**Ingestion**
Wash out mouth with water. If material has been swallowed and the exposed person is conscious, give small quantities of water to drink. Stop if the exposed person feels sick as vomiting may be dangerous. Get medical attention if adverse health effects persist or are severe.

**Skin contact**
No special measures required. In case of contact, immediately flush skin with plenty of water. Get medical attention if symptoms occur.

**Eye contact**
No special measures are required. In case of contact with eyes, rinse immediately with plenty of water. Get medical attention if symptoms occur.

**Protection of first-aiders**
In case of major fire and large quantities: No action shall be taken involving any personal risk or without suitable training. If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Wash contaminated clothing thoroughly with water before removing it, or wear gloves.

**Advice to doctor**
In case of inhalation of decomposition products in a fire, symptoms may be delayed. The exposed person may need to be kept under medical surveillance for 48 hours.

5. Fire-fighting measures

**Extinguishing media**

**Suitable**
In case of fire, use water spray (fog), foam, dry chemical or CO₂.

**Not suitable**
None known.

**Special exposure hazards**
In case of major fire and large quantities: Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training. This material is harmful to aquatic organisms. Fire water contaminated with this material must be contained and prevented from being discharged to any waterway, sewer or drain.

**Hazardous thermal decomposition products**
Decomposition products may include the following materials:
- carbon dioxide
- carbon monoxide
- nitrogen oxides
- metal oxide/oxides

**Special protective equipment for fire-fighters**
Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.

**Hazchem code**
2Z

6. Accidental release measures

**Personal precautions**
Low release. For professional use only. Handling of product in very small amounts or in situations where release is highly unlikely.

**Environmental precautions**
Low release. Avoid dispersal of spilt material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air). Water polluting material. May be harmful to the environment if released in large quantities.
6. Accidental release measures

**Methods for cleaning up**

<table>
<thead>
<tr>
<th>Spill Size</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Small spill</td>
<td>Small Quantity. For professional use only. Absorb with an inert material and place in an appropriate waste disposal container.</td>
</tr>
<tr>
<td>Large spill</td>
<td>Small Quantity. For professional use only. Absorb with an inert material and place in an appropriate waste disposal container.</td>
</tr>
</tbody>
</table>

7. Handling and storage

**Handling**

No special measures are required for small quantities under normal and intended conditions of product use. For professional use only. Put on appropriate personal protective equipment (see Section 8). Handle with care and dispose of in a safe manner.

**Storage**

Store in accordance with local regulations. Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see Section 10) and food and drink. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabelled containers. Use appropriate containment to avoid environmental contamination.

**Combustible liquid**

Not applicable.

8. Exposure controls/personal protection

**Occupational exposure limits**

<table>
<thead>
<tr>
<th>Ingredient name</th>
<th>Exposure limits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Silica, amorphous, fumed, cryst.-free</td>
<td>Safe Work Australia (Australia, 7/2012). TWA: 10 mg/m³ 8 hours. Form: Inhalable fraction</td>
</tr>
<tr>
<td>dibutyl phthalate</td>
<td>Safe Work Australia (Australia, 4/2013). TWA: 5 mg/m³ 8 hours.</td>
</tr>
<tr>
<td>cumene</td>
<td>Safe Work Australia (Australia, 4/2013). Absorbed through skin. TWA: 125 mg/m³ 8 hours. TWA: 25 ppm 8 hours. STEL: 75 ppm 15 minutes. STEL: 375 mg/m³ 15 minutes.</td>
</tr>
<tr>
<td>Butylated hydroxytoluene</td>
<td>Safe Work Australia (Australia, 4/2013). TWA: 10 mg/m³ 8 hours.</td>
</tr>
</tbody>
</table>

**Recommended monitoring procedures**

If this product contains ingredients with exposure limits, personal, workplace atmosphere or biological monitoring may be required to determine the effectiveness of the ventilation or other control measures and/or the necessity to use respiratory protective equipment. Reference should be made to appropriate monitoring standards. Reference to national guidance documents for methods for the determination of hazardous substances will also be required.

**Exposure controls**

**Engineering measures**

No special measures are required for small quantities under normal and intended conditions of product use.

**Hygiene measures**

No special measures are required for small quantities under normal and intended conditions of product use.

**Eyes**

Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists or dusts. If contact is possible, the following protection should be worn, unless the assessment indicates a higher degree of protection: chemical splash goggles.
8. Exposure controls/personal protection

**Hands**: Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary. Considering the parameters specified by the glove manufacturer, check during use that the gloves are still retaining their protective properties. It should be noted that the time to breakthrough for any glove material may be different for different glove manufacturers. In the case of mixtures, consisting of several substances, the protection time of the gloves cannot be accurately estimated.

**Respiratory**: No special measures are required for small quantities under normal and intended conditions of product use.

**Skin**: No special measures are required for small quantities under normal and intended conditions of product use.

**Environmental exposure controls**: No special measures are required for small quantities under normal and intended conditions of product use.

9. Physical and chemical properties

<table>
<thead>
<tr>
<th>Physical state</th>
<th>Solid. [Paste.]</th>
</tr>
</thead>
<tbody>
<tr>
<td>Colour</td>
<td>Various</td>
</tr>
<tr>
<td>Odour</td>
<td>Fruity.</td>
</tr>
<tr>
<td>Boiling point</td>
<td>Not available.</td>
</tr>
<tr>
<td>Melting point</td>
<td>Not available.</td>
</tr>
<tr>
<td>Vapour pressure</td>
<td>Not available.</td>
</tr>
<tr>
<td>Relative density</td>
<td>2.5</td>
</tr>
<tr>
<td>Flash point</td>
<td>Not available.</td>
</tr>
<tr>
<td>Flammable limits</td>
<td>Not available.</td>
</tr>
<tr>
<td>Vapour density</td>
<td>Not available.</td>
</tr>
<tr>
<td>pH</td>
<td>Not available.</td>
</tr>
<tr>
<td>Viscosity</td>
<td>Not available.</td>
</tr>
<tr>
<td>Auto-ignition temperature</td>
<td>Not available.</td>
</tr>
<tr>
<td>Solubility</td>
<td>Insoluble in the following materials: cold water and hot water.</td>
</tr>
</tbody>
</table>

10. Stability and reactivity

**Chemical stability**: The product is stable.

**Possibility of hazardous reactions**: Under normal conditions of storage and use, hazardous reactions will not occur. Under normal conditions of storage and use, hazardous polymerisation will not occur.

**Conditions to avoid**: Keep away from heat. Light.

**Materials to avoid**: Reactive or incompatible with the following materials: oxidizing materials and reducing materials. Amines

**Hazardous decomposition products**: Under normal conditions of storage and use, hazardous decomposition products should not be produced.
11. Toxicological information

Potential acute health effects

Inhalation: Harmful by inhalation. Irritating to respiratory system. Exposure to decomposition products may cause a health hazard. Serious effects may be delayed following exposure.

Ingestion: Irritating to mouth, throat and stomach.

Skin contact: Irritating to skin.

Eye contact: Severely irritating to eyes. Risk of serious damage to eyes.

Acute toxicity

<table>
<thead>
<tr>
<th>Product/ingredient name</th>
<th>Result</th>
<th>Species</th>
<th>Dose</th>
<th>Exposure</th>
</tr>
</thead>
<tbody>
<tr>
<td>Silica, amorphous, fumed, cryst.-free dibutyl phthalate</td>
<td>LD50 Oral</td>
<td>Rat</td>
<td>3160 mg/kg</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>LD50 Dermal</td>
<td>Rabbit</td>
<td>&gt;25000 mg/kg</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>LD50 Oral</td>
<td>Rat</td>
<td>7499 mg/kg</td>
<td>-</td>
</tr>
<tr>
<td>α,α-dimethylbenzyl hydroperoxide</td>
<td>LD50 Oral</td>
<td>Rat</td>
<td>500 mg/kg</td>
<td>-</td>
</tr>
<tr>
<td>cumene</td>
<td>LD50 Oral</td>
<td>Rat</td>
<td>382 mg/kg</td>
<td>-</td>
</tr>
<tr>
<td>Butylated hydroxytoluene</td>
<td>LD50 Oral</td>
<td>Rat</td>
<td>890 mg/kg</td>
<td>-</td>
</tr>
</tbody>
</table>

Conclusion/Summary: Based on the criteria of the protocol, this product is considered cytotoxic per ISO 10993-5.

Potential chronic health effects

Chronic toxicity

Conclusion/Summary: Not available.

Irritation/Corrosion

<table>
<thead>
<tr>
<th>Product/ingredient name</th>
<th>Result</th>
<th>Species</th>
<th>Score</th>
<th>Exposure</th>
<th>Observation</th>
</tr>
</thead>
<tbody>
<tr>
<td>α,α-dimethylbenzyl hydroperoxide cumene</td>
<td>Skin - Mild irritant</td>
<td>Rabbit</td>
<td>-</td>
<td>500 milligrams</td>
<td>24 hours 500 milligrams</td>
</tr>
<tr>
<td></td>
<td>Eyes - Mild irritant</td>
<td>Rabbit</td>
<td>-</td>
<td>86 milligrams</td>
<td>24 hours 10 milligrams</td>
</tr>
<tr>
<td></td>
<td>Eyes - Mild irritant</td>
<td>Rabbit</td>
<td>-</td>
<td>24 hours 100 milligrams</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>Skin - Moderate irritant</td>
<td>Rabbit</td>
<td>-</td>
<td>48 hours 100 milligrams</td>
<td>-</td>
</tr>
<tr>
<td>Butylated hydroxytoluene</td>
<td>Eyes - Moderate irritant</td>
<td>Rabbit</td>
<td>-</td>
<td>48 hours 500 milligrams</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>Skin - Moderate irritant</td>
<td>Rabbit</td>
<td>-</td>
<td>48 hours 500 milligrams</td>
<td>-</td>
</tr>
</tbody>
</table>

Conclusion/Summary: Not available.

Sensitiser

Conclusion/Summary: Not available.

Carcinogenicity

Conclusion/Summary: Not available.

Mutagenicity

Conclusion/Summary: Not available.

Teratogenicity

Conclusion/Summary: Not available.

Reproductive toxicity

Conclusion/Summary: Not available.
11. Toxicological information

<table>
<thead>
<tr>
<th>Product name</th>
<th>Carcinogenic effects</th>
<th>Mutagenic effects</th>
<th>Developmental effects</th>
<th>Fertility effects</th>
</tr>
</thead>
<tbody>
<tr>
<td>dibutyl phthalate</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Chronic effects**: No known significant effects or critical hazards.

**Carcinogenicity**: No known significant effects or critical hazards.

**Mutagenicity**: No known significant effects or critical hazards.

**Teratogenicity**: May cause birth defects.

**Developmental effects**: No known significant effects or critical hazards.

**Fertility effects**: May impair fertility, based on animal data.

**Over-exposure signs/symptoms**

**Inhalation**: Adverse symptoms may include the following:
- Respiratory tract irritation
- Coughing
- Reduced foetal weight
- Increase in foetal deaths
- Skeletal malformations

**Ingestion**: Adverse symptoms may include the following:
- Reduced foetal weight
- Increase in foetal deaths
- Skeletal malformations

**Skin**: Adverse symptoms may include the following:
- Irritation
- Redness
- Reduced foetal weight
- Increase in foetal deaths
- Skeletal malformations

**Eyes**: Adverse symptoms may include the following:
- Pain or irritation
- Watering
- Redness

**Target organs**: Contains material which may cause damage to the following organs: kidneys, the nervous system, the reproductive system, liver, gastrointestinal tract, upper respiratory tract, skin, eye, lens or cornea, testes.

12. Ecological information

**Ecotoxicity**: Harmful to aquatic organisms, may cause long-term adverse effects in the aquatic environment. Water polluting material. May be harmful to the environment if released in large quantities.

**Aquatic ecotoxicity**

<table>
<thead>
<tr>
<th>Product/ingredient name</th>
<th>Result</th>
<th>Species</th>
<th>Exposure</th>
</tr>
</thead>
<tbody>
<tr>
<td>dibutyl phthalate</td>
<td>Acute EC50 3.4 µg/l Marine water</td>
<td>Algae - Gymnodinium breve</td>
<td>96 hours</td>
</tr>
<tr>
<td></td>
<td>Acute EC50 2990 µg/l Fresh water</td>
<td>Daphnia - Daphnia magna</td>
<td>48 hours</td>
</tr>
<tr>
<td></td>
<td>Acute LC50 480 µg/l Fresh water</td>
<td>Fish - Lepomis macrochirus - Juvenile</td>
<td>96 hours</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(Fledgling, Hatchling, Weanling)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Chronic NOEC 210 µg/l Fresh water</td>
<td>Algae - Pseudokirchneriella subcapitata</td>
<td>96 hours</td>
</tr>
<tr>
<td>α,α-dimethylbenzyl hydroperoxide</td>
<td>Acute EC50 500 µg/l Fresh water</td>
<td>Daphnia - Daphnia magna</td>
<td>21 days</td>
</tr>
<tr>
<td>cumene</td>
<td>Chronic NOEC 25 µg/l Fresh water</td>
<td>Fish - Danio rerio - Embryo</td>
<td>5 weeks</td>
</tr>
<tr>
<td></td>
<td>Chronic NOEC 50 µg/l Fresh water</td>
<td>Fish - Oncorhynchus mykiss</td>
<td>96 hours</td>
</tr>
<tr>
<td></td>
<td>Acute LC50 3.9 mg/l</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Acute EC50 2600 µg/l Fresh water</td>
<td>Algae - Pseudokirchneriella</td>
<td>72 hours</td>
</tr>
</tbody>
</table>
12. Ecological information

<table>
<thead>
<tr>
<th>Product/ingredient name</th>
<th>Acute EC50</th>
<th>Acute LC50</th>
<th>Acute EC50</th>
<th>subcapitata</th>
<th>Crustaceans - Artemia sp. - Nauplii</th>
<th>Daphnia - Daphnia magna - Neonate</th>
<th>Fish - Oncorhynchus mykiss</th>
<th>Daphnia</th>
</tr>
</thead>
<tbody>
<tr>
<td>Butylated hydroxytoluene</td>
<td>7400 μg/l</td>
<td>2700 μg/l</td>
<td>0.77 mg/l</td>
<td>48 hours</td>
<td>48 hours</td>
<td>96 hours</td>
<td>48 hours</td>
<td></td>
</tr>
<tr>
<td>Butylated hydroxytoluene</td>
<td>10600 μg/l</td>
<td>2700 μg/l</td>
<td>0.77 mg/l</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Conclusion/Summary: Not available.

Other ecological information

Persistence/degradability

<table>
<thead>
<tr>
<th>Product/ingredient name</th>
<th>Test</th>
<th>Result</th>
<th>Dose</th>
<th>Inoculum</th>
</tr>
</thead>
<tbody>
<tr>
<td>α,α-dimethylbenzylhydroperoxide</td>
<td>301E Ready Biodegradability - Modified OECD Screening Test</td>
<td>18% - 28 days</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Butylated hydroxytoluene</td>
<td>301D Ready Biodegradability - Closed Bottle Test</td>
<td>&lt;10% - 20 days</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

Conclusion/Summary: Not available.

Bioaccumulative potential

<table>
<thead>
<tr>
<th>Product/ingredient name</th>
<th>LogPow</th>
<th>BCF</th>
<th>Potential</th>
</tr>
</thead>
<tbody>
<tr>
<td>dibutyl phthalate</td>
<td>4.46</td>
<td>165.96</td>
<td>high</td>
</tr>
<tr>
<td>α,α-dimethylbenzylhydroperoxide</td>
<td>1.6</td>
<td>9</td>
<td>low</td>
</tr>
<tr>
<td>cumene</td>
<td>3.55</td>
<td>94.69</td>
<td>low</td>
</tr>
<tr>
<td>Butylated hydroxytoluene</td>
<td>5.1</td>
<td>330 to 1800</td>
<td>high</td>
</tr>
</tbody>
</table>

Other adverse effects: No known significant effects or critical hazards.

13. Disposal considerations

Methods of disposal: The generation of waste should be avoided or minimised wherever possible. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements.

14. Transport information

International transport regulations

<table>
<thead>
<tr>
<th>Regulation</th>
<th>UN number</th>
<th>Proper shipping name</th>
<th>Classes</th>
<th>PG*</th>
<th>Label</th>
<th>Additional information</th>
</tr>
</thead>
</table>

Version: 1
<table>
<thead>
<tr>
<th></th>
<th>UN3077</th>
<th>ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (dibutyl phthalate, α,α-dimethylbenzyl hydroperoxide)</th>
<th>9</th>
<th>III</th>
</tr>
</thead>
<tbody>
<tr>
<td>ADG</td>
<td></td>
<td></td>
<td></td>
<td>The product is not regulated as a dangerous good when transported by road or rail in either an IBC, or in other container types if ≤500 kg. The environmentally hazardous substance mark is not required when transported in sizes of ≤5 L or ≤5 kg.</td>
</tr>
<tr>
<td>ADR</td>
<td></td>
<td></td>
<td></td>
<td>The environmentally hazardous substance mark is not required when transported in sizes of ≤5 L or ≤5 kg.</td>
</tr>
<tr>
<td>IMDG</td>
<td></td>
<td></td>
<td></td>
<td>The marine pollutant mark is not required when transported in sizes of ≤5 L or ≤5 kg.</td>
</tr>
</tbody>
</table>

**Hazchem code**
2Z

**Special provisions**
179, 274, 331, 335, AU01

**Hazard identification number**
90

**Limited quantity**
5 kg

**Special provisions**
274, 335, 601

**Tunnel code**
(E)

**Emergency schedules (EmS)**
F-A, S-F

**Special provisions**
274, 335, 966, 967
14. Transport information

| IATA | UN3077 | Environmentally hazardous substance, solid, n.o.s. (dibutyl phthalate, α,α-dimethylbenzyl hydroperoxide) | III | The environmentally hazardous substance mark is not required when transported in sizes of ≤5 L or ≤5 kg. |

- **Passenger and Cargo Aircraft**
  - Quantity limitation: 400 kg
  - Packaging instructions: 956

- **Cargo Aircraft Only**
  - Quantity limitation: 400 kg
  - Packaging instructions: 956

- **Limited Quantities - Passenger Aircraft**
  - Quantity limitation: 30 kg
  - Packaging instructions: Y956

- **Special provisions**
  - A97, A158, A179

PG*: Packing group

15. Regulatory information

- **Standard Uniform Schedule of Medicine and Poisons**
  - Not regulated.

- **Control of Scheduled Carcinogenic Substances**
  - Australia inventory (AICS): All components are listed or exempted.
  - EU Classification: Repr. Cat. 2; R61; Repr. Cat. 3; R62; Xn; R20; Xi; R41, R37/38; R52/53

16. Other information

- **Person who prepared the MSDS**: IHS
- **Date of previous issue**: No previous validation.
- **Date of issue/ Date of revision**: 6/17/2014.
- **Version**: 1

Indicates information that has changed from previously issued version.

**Disclaimer**

To the best of our knowledge, the information contained herein is accurate. However, neither the above-named supplier, nor any of its subsidiaries, assumes any liability whatsoever for the accuracy or completeness of the information contained herein.

Final determination of suitability of any material is the sole responsibility of the user. All materials may present unknown hazards and should be used with caution. Although certain hazards are described herein, we cannot guarantee that these are the only hazards that exist.