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|---|---|
| | **BOSSIL TECHNOLOGY SDN. BHD.** |
| | **Safety Data Sheet** |
| | **BS-540**<br>**cPVC Solvent Cement** |

**Issued date: 23/12/16** **Revision date: -** **Revision No.: 0**

## 1. Identification of the substance/preparation and of the company/undertaking

**Product name** : BS-540 cPVC Solvent Cement
**Product use** : Solvent-based adhesive
**Company** : Bossil Technology Sdn. Bhd.
22A-1, Jalan Tasik Utama 10,
The Trillium @ Lake Fields,
Sg. Besi, 57000 Kuala Lumpur,
Malaysia.

**Telephone** : +6016 - 2119190
**Fax** : -
**Email** : sales@bossil.com
**Website** : www.bossil.com

## 2. Hazard(s) identification

**Substance/Mixture** : Mixture

**Hazard classification** : Flam.Liq.2

Acute Tox.4 (skin)

Skin Irrit.2

Eye Irrit.2

Acute Tox.4 (inhaled)

STOT SE 3

Aquatic Chronic 3

**Pictogram** : GHS02  Flame

GHS07 Exclamation mark

**Signal word** : Warning

**Hazard Statement(s):**

| | |
|---|---|
| H225 | Highly flammable liquid and vapour. |
| H312 | Harmful in contact with skin. |
| H315 | Causes skin irritation. |
| H319 | Causes serious eye irritation. |

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| H332 | Harmful if inhaled. |
| H336 | May cause drowsiness or dizziness. |
| H412 | Harmful to aquatic life with long lasting effects. |

**Precautionary Statement(s):**

| | |
|---|---|
| P210 | Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. |
| P233 | Keep container tightly closed. |
| P240 | Ground container and receiving equipment. |
| P241 | Use explosion-proof electrical/ventilating/lighting equipment. |
| P242 | Use only non-sparking tools. |
| P243 | Take precautionary measures against static discharge. |
| P261 | Avoid breathing dust/fume/gas/mist/vapours/spray. |
| P264 | Wash hands thoroughly after handling. |
| P271 | Use only outdoors or in a well-ventilated area. |
| P272 | Contaminated work clothing should not be allowed out of the workplace. |
| P273 | Avoid release to the environment. |
| P280 | Wear protective gloves/protective clothing/eye protection/face protection. |
| P302+P352 | IF ON SKIN: Wash with soap and water. |
| P303+P361+P353 | IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water. |
| P304+P340 | IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing. |
| P305+P351+P338 | IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses if present and easy to do – continue rinsing. |
| P312 | Call a POISON CENTER or doctor/physician if you feel unwell. |
| P330 | Rinse mouth. |
| P332+P313 | If skin irritation occurs: Get medical advice/attention. |

| | |
|---|---|
| P337+P313 | If eye irritation persists get medical advice/attention. |
| P362 | Take off contaminated clothing and wash before reuse. |
| P403+P233 | Store in a well ventilated place. Keep container tightly closed. |
| P403+P235 | Store in a well-ventilated place. Keep cool. |
| P405 | Store locked up. |

**Other hazards which do not result in classification but contribute to overall hazards:** None known

## 3. Composition/Information on ingredients

| Chemical name | CAS No. | EINECS No. | % |
|---|---|---|---|
| Cyclohexanone | 108-94-1 | 203-631-1 | 70 - 90 |
| Butanone | 78-93-3 | 201-159-0 | |
| Tetrahydrofuran | 109-99-9 | 203-726-8 | |
| Propanone | 67-64-1 | 200-662-2 | |
| cPVC resin | 68648-82-8 | - | 10 - 30 |
| Zinc oxide | 1314-13-2 | 215-222-5 | 0.1 - 1.0 |

## 4. First-aid measures

**In case of inhalation:**
Remove to fresh air, keep warm and at rest. Contact physician if symptom persists.

**In case of skin contact:**
Remove contaminated clothing. Rinse with copious amount of water and soap. Get medical advice if skin irritation or a rash occurs. Wash clothing before reuse.

**In case of eye contact:**
Contact lenses should be removed. Rinse with copious amount of water immediately. Seek medical advice if eye irritation develops and persists.

**In case of ingestion:**
DO NOT induce vomiting. Rinse mouth thoroughly with water. Get medical attention if a symptom persists.

**Personal protection equipment for first-aiders:**

Pay attention to any potential hazards and use recommended personal protection equipment if potential for exposure exists.

**Most important symptoms and effects, acute and delayed:**
Harmful in contact with skin. Causes skin and eye irritation. Harmful if inhaled. May cause drowsiness or dizziness.

## 5. Fire-fighting measures

**Suitable extinguishing media:**
Alcohol-resistant foam, carbon dioxide, dry chemical.

**Unsuitable extinguishing media:**
None known.

**Specific firefighting procedures:**
Remove undamaged containers from fire area if it is safe to do so. Use extinguishing media that is suitable to local circumstances and surrounding environment.

**Special person protection equipment for firefighters:**
NIOSH-approved self-contained breathing apparatus and full protective clothing must be worn in case of fire.

**Specific hazards arising from firefighting:**
Exposure to combustion products may be a hazard to health.

**Thermal decomposition products:**
Carbon dioxide, carbon monoxide, nitrogen oxides, and other irritant gases.

## 6. Accidental release measures

**Personal precautions, protective equipment and emergency procedure:**
Use recommended personal protective equipment. Keep unprotected persons away. Ensure adequate ventilation.

**Measure for cleaning/collecting:**
Wipe or soak with inert liquid binding material (sand, sawdust, etc.). Scrape away cured material. Dispose the spilt material according to local or national regulations. Section 13 of this safety data sheet provides information regarding certain local or national requirements.

**Additional information:**
Prevent spillage from entering drainage/sewer systems. Spillages or uncontrolled discharges into watercourses must be IMMEDIATELY alerted to the Environmental Agency or other appropriate regulatory body.

## 7. Handling and storage

**Handling:**
Ensure good ventilation during use. Avoid contact with skin and eyes. Do not eat, drink, or smoke when using the product.

**Storage:**
Ensure containers and cartridges are tightly closed. Store in a dry, well-ventilated area, and protected from direct sunlight with temperature not exceeding 30 °C. Keep away from incompatibles. Refer to section 10 for incompatible materials.

## 8. Exposure controls/personal protection

| Components | CAS No. | Form of exposure (Value type) | Control Parameter | Basis |
|---|---|---|---|---|
| Cyclohexanone | 108-94-1 | 8 hours TWA (skin) | 100 mg/m³ | Malaysia OSHA |
| Cyclohexanone | 108-94-1 | 8 hours TWA | 200 mg/m³ | US OSHA |
| Cyclohexanone | 108-94-1 | 8 hours TWA | 39 mg/m³ | UK WEL |
| Cyclohexanone | 108-94-1 | 8 hours TWA | 100 mg/m³ | Safe Work Australia |
| Butanone | 78-93-3 | 8 hours TWA | 590 mg/m$^3$ | Malaysia OSHA |
| Butanone | 78-93-3 | 8 hours TWA | 590 mg/m$^3$ | US OSHA |
| Butanone | 78-93-3 | 8 hours TWA | 600 mg/m$^3$ | UK WEL |
| Butanone | 78-93-3 | 8 hours TWA | 445 mg/m$^3$ | Safe Work Australia |
| Tetrahydrofuran | 109-99-9 | 8 hours TWA | 590 mg/m³ | Malaysia OSHA |
| Tetrahydrofuran | 109-99-9 | 8 hours TWA | 590 mg/m³ | US OSHA |
| Tetrahydrofuran | 109-99-9 | 8 hours TWA | 150 mg/m³ | UK WEL |
| Tetrahydrofuran | 109-99-9 | 8 hours TWA | 295 mg/m³ | Safe Work Australia |
| Propanone | 67-64-1 | 8 hours TWA | 1187 mg/m$^3$ | Malaysia OSHA |
| Propanone | 67-64-1 | 8 hours TWA | 2400 mg/m$^3$ | US OSHA |
| Propanone | 67-64-1 | 8 hours TWA | 1210 mg/m$^3$ | UK WEL |
| Propanone | 67-64-1 | 8 hours TWA | 1185 mg/m$^3$ | Safe Work Australia |
| Zinc oxide | 1314-13-2 | 8 hours TWA | 5 mg/m³ | Malaysia OSHA |
| Zinc oxide | 1314-13-2 | 8 hours TWA | 5 mg/m³ | US OSHA |
| Zinc oxide | 1314-13-2 | 8 hours TWA | 5 mg/m³ | UK WEL |
| Zinc oxide | 1314-13-2 | 8 hours TWA | 5 mg/m³ | Safe Work Australia |

**Engineering controls:**
Product curing may form hazardous compounds. Ensure adequate ventilation and minimise workplace exposure concentrations.

**Industrial hygiene:**
Remove immediately all contaminated clothing. Do not inhale vapour. Wash hands and contaminated areas with water and soap before leaving the work site. Change clothing before leaving workplace and wash before reuse. Do not eat, drink, or smoke while using product.

**Hand protection:**
Suitable impervious protective gloves (neoprene, nitrile, etc.). Breakthrough time is not tested for this product. Change gloves often if possible.

**Respiratory protection:**
A NIOSH-approved respirator with filter for organic vapours is recommended where local ventilation is not adequate.

**Eye/Face protection:**
Protective goggles/safety glasses.

## 9. Physical and chemical properties

| | |
|---|---|
| **Appearance** | : Viscous liquid |
| **Odour** | : Aromatic odour |
| **Odour threshold** | : Not determined |
| **pH** | : Not applicable |
| **Freezing/Melting point** | : Not determined |
| **Boiling point range** | : Not determined |
| **Flash point** | : <23 °C |
| **Evaporation rate** | : Not applicable |
| **Flammability** | : Highly flammable |
| **Explosive properties** | : Not classified as explosive |
| **Oxidising properties** | : Not classified as oxidising |
| **Vapour pressure** | : Not applicable |
| **Vapour density** | : Not applicable |
| **Relative density** | : Approximately 0.91 |
| **Solubility in water** | : Insoluble |
| **N-octanol/water partition coefficient** | : Not determined |
| **Decomposition temperature** | : Not determined |
| **Viscosity** | : 1,000 - 1,600 cPs |

## 10. Stability and reactivity

**Reactivity:**
No reactive hazards known.

**Stability:**
Stable under recommended handling and storage conditions.

**Conditions to avoid:**
Avoid sources of ignition.

**Hazardous reactions:**
Hazardous polymerisation will not occur.

**Hazardous decomposition products:**
None known.

**Incompatible materials:**
Strong oxidising agents, acids, and sources of ignition.

## 11. Toxicology information

No specific oral, inhalation or dermal toxicology data is known for this product. Any toxicological data included in this section is based on the data associated with the components.

**Acute oral toxicity, $LD_{50}$ (rat):**
Not classified based on available information and/or concentration of components.

| | |
|---|---|
| Cyclohexanone | 1,890 mg/kg |
| Butanone | 3,460 mg/kg |
| Tetrahydrofuran | 1,650 mg/kg |
| Propanone | 5,800 mg/kg |
| Zinc oxide | >5,000 mg/kg |

**Acute dermal toxicity, $LD_{50}$ (rabbit):**
Classified as acutely toxic if in contact with skin.

| | |
|---|---|
| Cyclohexanone | >794 mg/kg |
| Butanone | >8,050 mg/kg |
| Tetrahydrofuran | >2,000 mg/kg |
| Propanone | >7,400 mg/kg |
| Zinc oxide | >2,000 mg/kg |

**Acute inhalation toxicity, $LC_{50}$ (4 hours, rat):**
Classified as acutely toxic if inhaled.

| | |
|---|---|
| Cyclohexanone | >6.2 mg/L |
| Zinc oxide | >5.7 mg/L |

**Serious eye damage/eye irritation:**
Classified as an eye irritant.

| | |
|---|---|
| Cyclohexanone | Causes eye irritation. |

| | |
|---|---|
| Butanone | Causes eye irritation. |
| Tetrahydrofuran | Causes eye irritation. |
| Propanone | Causes eye irritation. |
| Zinc oxide | Not eye irritant. |

**Skin corrosion/skin irritation:**
Classified as a skin irritant.

| | |
|---|---|
| Cyclohexanone | Causes skin irritation. |
| Butanone | Not skin irritant. |
| Tetrahydrofuran | Not skin irritant. |
| Propanone | Not skin irritant. |
| Zinc oxide | Not skin irritant. |

**Respiratory/Skin sensitisation:**
Not classified based on available information and/or concentration of components.

| | |
|---|---|
| Cyclohexanone | Not sensitising on skin. |
| Butanone | Not sensitising on skin. |
| Tetrahydrofuran | Not sensitising on skin. |
| Propanone | Not sensitising on skin. |
| Zinc oxide | Not sensitising on skin. |

**Germ cell mutagenicity:**
Not classified based on available information and/or concentration of components.

| | |
|---|---|
| Cyclohexanone | Negative genotoxicity *in vitro*.<br>Negative genotoxicity *in vivo*. |
| Butanone | Negative genotoxicity *in vitro*.<br>Negative genotoxicity *in vivo*. |
| Tetrahydrofuran | Negative genotoxicity *in vitro*.<br>Negative genotoxicity *in vivo*. |
| Propanone | Negative genotoxicity *in vitro*.<br>Negative genotoxicity *in vivo*. |
| Zinc oxide | Negative genotoxicity *in vitro*.<br>Negative genotoxicity *in vivo*. |

**Carcinogenicity:**
Not classified based on available information and/or concentration of components.

| | |
|---|---|
| Cyclohexanone | Marginal/weak evidence of carcinogenic activity. |
| Propanone | Negative carcinogenicity. |

**Reproductive toxicity:**
Not classified based on available information and/or concentration of components.

| | |
|---|---|
| Cyclohexanone | No effect on fertility and foetal development. |
| Butanone | No effect on fertility.<br>Maternal toxicity, NOAEC: 1,002 ppm |
| Tetrahydrofuran | No effect on fertility.<br>Parental rats exposed to high concentration showed reduced body weight of offspring.<br>NOAEL: 1,800 ppm |
| Propanone | No effect on fertility and foetal development. |
| Zinc oxide | No effect on foetal development. |

**Specific target organ toxicity – single exposure:**
Classified as having narcotic effects.

| | |
|---|---|
| Butanone | May cause drowsiness and dizziness. |
| Tetrahydrofuran | May cause drowsiness and dizziness. |
| Propanone | May cause drowsiness and dizziness. |

**Specific target organ toxicity – repeated exposure:**
Not classified based on available information and/or concentration of components.

| | |
|---|---|
| Cyclohexanone | Exposure by oral on rats for 3 months.<br>NOAEL: 143 mg/kg bw/day |
| Butanone | Exposure by inhalation on rats for 90 days.<br>NOAEC: 5,014 ppm |
| Tetrahydrofuran | Exposure by oral on rats for 4 weeks.<br>NOAEL: 111.3 mg/kg bw/day |
| | Exposure by inhalation on mouse for 14 weeks.<br>NOAEC: 200 ppm |
| Propanone | Exposure by oral on mouse for 13 weeks.<br>LOAEL: 11,298 mg/kg bw/day |
| | Exposure by inhalation on rats for 8 weeks.<br>NOAEC: 45,000 mg/m$^3$ |
| Zinc oxide | Exposure by dermal on rats for 28 days.<br>LOAEL: 75 mg/kg bw/day |

| | |
|---|---|
| | Exposure by inhalation on rats for 3 months.<br>NOAEL: 1.5 mg/m³ |

**Aspiration toxicity:**
Not classified based on available information and/or concentration of components.

**Likely route of administration:**
Inhalation, skin contact, and ingestion.

## 12. Ecological information

Individual components of this mixture have been independently tested by the raw material suppliers and any known results have been presented below. The results for the individual components may not be representative of the ecological toxicity of this finished product. This finished product has not been tested to determine individual toxicological/ecological limits.

**Ecology toxicity:**
Harmful to aquatic life with long lasting effects.

| | |
|---|---|
| Cyclohexanone<br>Toxicity to fish<br>Toxicity to crustacean<br>Toxicity to algae or other aquatic plants | <br>Exposure for 96 hours, $LC_{50}$: 527-732mg/L<br>Exposure for 24 hours, $EC_{50}$: 800 mg/L<br>Exposure for 72 hours, $EC_{50}$: 32.9 mg/L |
| Butanone<br>Toxicity to fish<br>Toxicity to crustacean<br>Toxicity to algae or other aquatic plants | <br>Exposure for 96 hours, $LC_{50}$: 2,993 mg/L<br>Exposure for 48 hours, $EC_{50}$: 308 mg/L<br>Exposure for 72 hours, $EC_{50}$: 1,972 mg/L |
| Tetrahydrofuran<br>Toxicity to fish<br>Toxicity to crustacean<br>Toxicity to algae or other aquatic plants | <br>Exposure for 96 hours, $LC_{50}$: 2,160 mg/L<br>Exposure for 24 hours, $EC_{50}$: 3,485 ppm<br>Exposure for 8 days, TTC: 3,700 mg/L |
| Propanone<br>Toxicity to fish<br>Toxicity to crustacean<br>Toxicity to algae or other aquatic plants | <br>Exposure for 96 hours, LC50: 6,210 mg/L<br>Exposure for 48 hours, EC50: 8,800 mg/L<br>Exposure for 8 days, NOEC: 530 mg/L |
| Zinc oxide<br>Toxicity to fish<br>Toxicity to crustacean<br>Toxicity to algae or other aquatic plants | M-factor: 1<br>Exposure for 96 hours, $LC_{50}$: 1.55 mg/L<br>Exposure for 24 hours, $LC_{50}$: 0.19 mg/L<br>Exposure for 96 hours, NOAEC: 10 - 50 mg/L |

**Persistence and degradability:**
Not likely to be persistent based on available information and/or concentration of components.

| | |
|---|---|
| Cyclohexanone | Readily biodegradable.<br>Exposure for 14 days, >90% biodegradation. |
| Butanone | Readily biodegradable.<br>Exposure for 28 days, 98% biodegradation. |
| Tetrahydrofuran | Not readily biodegradable in 28 days, but biodegradable if exposed for longer periods of time.<br>Exposure for 28 days, 39% biodegradation.<br>Exposure for 52 days, 61% biodegradation. |

| | |
|---|---|
| Propanone | Readily biodegradable.<br>Exposure for 20 days, 91% biodegradation. |

**Bioaccumulative potential:**
No bioaccumulation potential based on available information and/or concentration of components.

| | |
|---|---|
| Propanone | BCF: 3 |

**Mobility in soil:**
No data available.

## 13. Disposal information

**Waste treatment/disposal methods - unused products**
Disposal of waste to be in accordance with the Environmental Quality (Scheduled Wastes) Regulations and other guidelines issuance by DOE and/or local authorities.

**Waste treatment/disposal methods - contaminated packaging**
Dispose of as unused product. Empty container should be taken to an approved waste handling site for recycling or disposal.

## 14. Transport information

**Road transport (UNRTDG):**
**UN number** : UN1133
**Proper shipping name** : ADHESIVES containing flammable liquid
**Technical name** : Not applicable
**Hazard class** : 3
**Classification code** : F1
**Packing group** : II

**Marine transport (IMDG):**
**UN number** : UN1133
**Proper shipping name** : ADHESIVES containing flammable liquid
**Technical name** : Not applicable
**Hazard class** : 3
**EmS** : F-E, S-D
**Packing group** : II
**Marine pollutant** : Not marine pollutant

**Air transport (IATA):**.
**UN number** : UN1133
**Proper shipping name** : ADHESIVES containing flammable liquid
**Technical name** : Not applicable
**Hazard class** : 3
**Packing group** : II

## 15. Regulatory information

**Safety, health, and environmental regulations specific for the hazardous chemical in question:**
Occupational Safety and Health (Use and Standards of Exposure of Chemicals Hazardous to Health) Regulations 2010 (Malaysia)

Occupational Safety and Health (Classification, Labelling, and Safety Data Sheet of Hazardous Chemicals) Regulations 2013 (Malaysia)

Regulation (EC) No 1272/2008 on classification, labelling and packaging of substances and mixtures (European Union)

Occupational Safety and Health Administration (OSHA) (2006) Air Contaminants. 29 CFR 1910.1000 (United States of America)

Work Health and Safety Act 2011 (Australia)

EH40/2005 Workplace exposure limits (United Kingdom)

**Chemical inventory status:**

| | |
|---|---|
| Australia AICS | : All ingredients listed or exempt. |
| Canada DSL | : All ingredients listed or exempt. |
| China IECSC | : All ingredients listed or exempt. |
| Japan ENCS | : All ingredients listed or exempt. |
| Korea KECI | : All ingredients listed or exempt. |
| Philippines PICCS | : All ingredients listed or exempt. |
| United States TCSA | : All ingredients listed or exempt. |

## 16. Other information

**Definitions:**

| | |
|---|---|
| **TWA** | **:** Time-weighted average. |
| **STEL** | **:** Short-term exposure level. |
| **OSHA** | **:** Occupational Safe and Health Act |
| **WEL** | **:** Workplace exposure limits |
| **$LD_{50}$** | **:** The minimum dose required for lethal effects in 50% of a given population of test specimens. |
| **ppm** | **:** part per million |
| **bw** | **:** body weight |
| **BCF** | **:** Bioconcentration factor |
| **NOAEL** | **:** No-observed-adverse-effect-level |
| **LOAEL** | **:** Lowest-observed-adverse-effect level |
| **NIOSH** | **:** National Institute for Occupational Safety and Health. |
| **UNRTDG** | **:** United Nations Recommendations on the Transport of Dangerous Goods |
| **IMDG** | **:** International Maritime Dangerous Goods |
| **IATA** | **:** International Air Transport Association |
| **AICS** | **:** Australian Inventory of Chemical Substances |
| **DSL** | **:** Domestic Substance List |
| **ENCS** | **:** Existing and New Chemical Substances. |
| **KECI** | **:** Korea Existing Chemicals Inventory. |
| **ECSN** | **:** Existing Chemical Substance Nomination. |
| **TSCA** | **:** Toxic Substances Control Act |

All materials may present unknown hazards and should be used with caution. Although certain hazards are described herein, we cannot guarantee these are the only hazards that exist. The details contained herein are based on our present state of knowledge and experience in characterising our product with regard to any possible safety requirement at the date of its publication. We do, however, pass them on without any warranty or property assurances.