1. IDENTIFICATION OF THE SUBSTANCE/PREPARATION AND OF THE COMPANY/UNDERTAKING

1.1 Identification of the substance or preparation: zb® 63 binder (clear, cyan, magenta, yellow, black)

1.2 Use of the substance / preparation: For use with ZPrinter® 3D inkjet printer

1.3 Company/undertaking identification:

3D Systems Europe Ltd.
Mark House, Mark Road
Hemel Hempstead
Herts HP2 7
United Kingdom
Phone: +44 144-2282600
703.527.3887 - Chemtrec (U.S.)
e-mail: info@3dsystems-europe.com

2. HAZARDS IDENTIFICATION

2.1 Classification: Not classified according to EC-regulation 1272/2008. Not dangerous product according to EC-regulation no. 67/548/EWG or 1999/45/EC.

2.2 Information pertaining to special dangers for human and environment: None

3. COMPOSITION/INFORMATION ON INGREDIENTS

3.1 Preparation related information

Description: aqueous solution

3.2 Hazard ingredients:

<table>
<thead>
<tr>
<th>Chemical name</th>
<th>CAS-No</th>
<th>EC-No</th>
<th>%</th>
<th>Classification</th>
</tr>
</thead>
<tbody>
<tr>
<td>2-pyrrolidone</td>
<td>616-45-5</td>
<td>210-483-1</td>
<td>0-1</td>
<td>Xi</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Symbol</th>
</tr>
</thead>
<tbody>
<tr>
<td>R22, R 37/38, R41</td>
</tr>
</tbody>
</table>

4. FIRST AID MEASURES

4.1 In case of inhalation: Move affected person to fresh air. If respiratory irritation occurs, seek medical attention immediately.

4.2 In case of skin contact: Flush skin with plenty of soap and water.

4.3 In case of eye contact: Flush eyes with plenty of water.

4.4 In case of ingestion: If ingested, drink plenty of water. Do not induce vomiting.

5. FIRE-FIGHTING MEASURES

5.1 Suitable extinguishing media: Water mist, dry chemical, carbon dioxide, or appropriate foam.

5.2 Special exposure hazards arising from the substance or preparation itself, combustion products, resulting gases: Thermal decomposition products can include CO2, CO and nitrogen oxides.
6. ACCIDENTAL RELEASE MEASURES

6.1. Personal precautions: Wear appropriate protective equipment and clothing.

6.2. Environmental precautions: Avoid discharge to sewer system.

6.3. Methods for cleaning up: Wipe up. Place all waste in an appropriate container for disposal.

7. HANDLING AND STORAGE

7.1 Handling: Avoid contact with skin and eyes. Do not allow to enter drains or watercourses.

7.2 Storage: Store sealed in the original container at room temperature.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

8.1 Exposure limit values:

General Product Information: No occupational exposure limits (PEL/TWA) have been established for this product.

Component Analysis:

<table>
<thead>
<tr>
<th>Component</th>
<th>Component Manufacturer IEL (Internal Exposure Limit)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2-pyrrolidone</td>
<td>NA</td>
</tr>
</tbody>
</table>

8.2 Exposure controls

Technical measures to prevent exposure: Use local exhaust ventilation.

Instructual measures to prevent exposure: When using, do not eat, drink or smoke. Wash hands after handling and before eating, smoking and using the lavatory and at the end of the day.

Personal protection equipment:

Respiratory protection: If ventilation cannot effectively keep vapor concentrations below established limits, appropriate certified respiratory protection must be provided (respiratory mask FFP3).

Hand protection: Use impervious nitrile gloves.

Eye protection: Wear safety glasses or chemical goggles.

Body protection: Use apron and closed shoes.

9. PHYSICAL AND CHEMICAL PROPERTIES

9.1 Appearance:

Physical state: Liquid (clear, cyan, magenta, yellow or black)

9.2 Important health, safety and environmental information

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>pH (20 °C)</td>
<td>9.8</td>
</tr>
<tr>
<td>Melting point/range (°C)</td>
<td>0°</td>
</tr>
<tr>
<td>Boiling point/range (°C)</td>
<td>100</td>
</tr>
<tr>
<td>Flash point (°C)</td>
<td>NA</td>
</tr>
<tr>
<td>Ignition temperature (°C)</td>
<td>NA</td>
</tr>
<tr>
<td>Vapour pressure (°C)</td>
<td>NA</td>
</tr>
<tr>
<td>Density (g/cm³)</td>
<td>1.0</td>
</tr>
<tr>
<td>Bulk density (kg/m³)</td>
<td>NA</td>
</tr>
<tr>
<td>Water solubility (20°C in g/l)</td>
<td>soluble</td>
</tr>
<tr>
<td>Viscosity, dynamic (mPa s)</td>
<td>NA</td>
</tr>
<tr>
<td>Dust explosion hazard</td>
<td>NA</td>
</tr>
<tr>
<td>Explosion limits</td>
<td>NA</td>
</tr>
</tbody>
</table>
10. STABILITY AND REACTIVITY

Hazardous decomposition products: Carbon dioxide, carbon monoxide and other toxic fumes can be released at high temperatures or upon burning.

11. TOXICOLOGICAL INFORMATION

11.1 Toxicokinetics, metabolism and distribution: NA

11.2 Acute effects (toxicity tests)

<table>
<thead>
<tr>
<th>Component</th>
<th>LD₅₀ Oral</th>
<th>LD₅₀ Dermal</th>
</tr>
</thead>
<tbody>
<tr>
<td>2-pyrrolidone</td>
<td>328 mg/kg (rats)</td>
<td>NA</td>
</tr>
</tbody>
</table>

11.3. General remarks:
Carcinogenicity: None of this product's components are listed by ACGIH, IARC, OSHA, NIOSH, or NTP.

12. Ecological information

12.1 Ecotoxicity: The aquatic toxicity of the product is unknown. No data are available for the components of this product.

12.2 Mobility: No information available for product.

12.3 Persistence and degradability: No information available for product.

12.4 Results of PBT assessment: No information available for product

12.5 Other adverse effects: No information available for product

13. DISPOSAL CONSIDERATIONS

Appropriate disposal / Product: Do not contaminate drains, soil or surface waters with this material or its container. Reduce waste by attempting to utilize product completely. Dispose of this container and its contents in accordance with all local, state, and federal regulations.

14. TRANSPORT INFORMATION

14.1 Land transport (ADR/RID/GGVSE): Not regulated

14.2 Sea transport (IMDG-Code/GGVSee): Not regulated

14.3 Air transport (ICAO-IATA/DGR): Not regulated

15. REGULATORY INFORMATION

15.1 EU regulations

Chemical Safety Assessment:
Labelling
Hazard symbols and hazard statements: Not classified

15.2 National regulations

Wassergefährdungsklasse (water hazard class, Germany): WGK 1: Weak hazard to waters
Other regulations, restrictions and prohibition regulations: All components are listed on the TSCA and EINECS inventories or are exempt from listing requirements
16. OTHER INFORMATION

16.1 Relevant R-Phrases (Number and full text) referred to in sections 2 and 3:

R41: Risk of serious damage to eyes.
R22: Harmful if swallowed
R37/38: Irritating to respiratory system and skin

Xi: Irritant

16.2 Further information:

SDS Creation Date: ........ October 23, 2012
SDS Revision #: ..............NA
SDS Revision Date: ........ NA
Reason for Revision: ......NA

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