



## MATERIAL SAFETY DATA SHEET

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Revision : 5.0	Supersedes date : 18 April 2008

1. IDENTIFICATION OF THE SUBSTANCE AND OF THE COMPANY			
1.1 <b>Identification of product</b>			
Product Name	:	Phenolic microspheres	
Trade Name	:	<b>PHENOSET</b> microspheres	
Chemical name	:	Phenol formaldehyde polymer, cured	
Manufacturer product ID	:	BJO-0930, BJO-0840, EPO-0360	
1.2 <b>Use of product</b>			
Functional filler for composites			
1.3 <b>Company Identification</b>			
<b>MALAYAN ADHESIVES &amp; CHEMICALS SDN. BHD.</b>		Tel: +603-5566 1188	
No. 9, Jalan Utas 15/7, 40200 Shah Alam, Selangor Darul Ehsan, MALAYSIA		Fax: +603-5566 1122	
1.4 <b>Emergency telephone</b>			
+603-5566 1170 / 1171			
+603-5566 1018 / 1019 / 1020			
2. COMPOSITION / INFORMATION ON INGREDIENTS			
<b>Ingredient</b>	<b>CAS number</b>	<b>Percentage by weight</b>	<b>Hazard</b>
Phenolic resin	9003-35-4	100.0	Refer Section 3
3. HAZARDS IDENTIFICATION			
<i>Effects of a single exposure</i> May cause irritation, experienced as stinging with excessive blinking and tear production.			
<i>Effects of repeated exposure</i> Material may contain trace amount (<0.001%) of free formaldehyde, which is listed by IARC, NTP and OSHA as a carcinogen. There should be minimal risk when adequate ventilation is used due to the very low formaldehyde concentration.			

4.	FIRST AID MEASURES
<p><i>Eye contact:</i> Immediately flush eyes with water and continue for several minutes. Obtain medical attention if discomfort persists.</p> <p><i>Skin contact:</i> Remove contaminated clothing. Wash skin with soap and water. Obtain medical attention if irritation persists. Wash clothing before reuse.</p> <p><i>Inhalation:</i> If signs and symptoms develop, remove person to fresh air. If signs or symptoms persist, obtain medical attention.</p> <p><i>Ingestion:</i> Do not induce vomiting unless instructed to do so by medical personnel. Unless unconscious, give victim lots of water. Obtain medical attention.</p> <p><i>Notes to physician:</i> There is no specific antidote. Treatment or overexposure should be directed at the control of the symptoms and the clinical condition of the patient</p>	
5.	FIRE-FIGHTING MEASURES
<p><i>Suitable Extinguishing media:</i> Apply alcohol type or all-purpose type foams by manufacturers recommended techniques for large fires. Use carbon monoxide or dry chemical media for small fires. Do not direct a solid stream of water or foam into burning molten material; this may cause spattering and spread of fire.</p> <p><i>Extinguishing media to be avoided:</i> None</p> <p><i>Unusual fire and explosion hazards:</i> Avoid dispersion of dust in air to reduce potential of dust ignition / explosion.</p> <p><i>Special protective equipment for fire fighters:</i> Use self-contained breathing apparatus and protective coating.</p>	
6.	ACCIDENTAL RELEASE MEASURES
<p><i>Personal precautions:</i> Wear suitable protective clothing.</p> <p><i>Methods for cleaning up:</i> Ventilate with fresh air. Collect as much of the spilled material as possible. Use wet sweeping or water to avoid dusting. Collect and place in a closed container. Dispose as approved by your State Regulations.</p>	
7.	HANDLING AND STORAGE
7.1	<p><b>Handling</b></p> <p><i>General precaution:</i> For industrial and professional use only. Avoid dispersion of dust in air. Electrically bond and ground equipment. Avoid sparks and flame under dust conditions. Use with adequate ventilation.</p>

*Ventilation:*

Special, local ventilation is recommended in areas where containers are opened and their containers are discharged or in any areas where dusting conditions may occur.

*Other precaution*

{Caution} May undergo spontaneous smouldering if stored or heated in bulk above 35C under conditions allowing air ingress to the product. Store package material in a cool, well-ventilated area.

Do not store in the sun.

Do not dry in package – use special drying instructions as below.

Microspheres will undergo oxidation at elevated temperatures. Due to the microspheres' excellent insulating characteristics, the internal temperature of the mass can increase to the point where spontaneous ignition and smouldering can occur. The temperature at which this occurs is a function of the geometry, amount of material being heated and available oxygen. Smouldering appears as a soft glow similar to burning charcoal.

*Drying instructions for the Phenoset microspheres:*

To reduce the moisture content of this product to less than 4%, dry a two-inch layer of the product at a maximum temperature of 75C for 24 hours. To prevent oven or product contamination, the metal drying tray should be covered with a cloth that will allow the product moisture to evaporate.

**7.2 Storage**

Keep container closed.

**8. EXPOSURE CONTROLS / PERSONAL PROTECTION**

**8.1 Exposure limit values .**

No exposure limit has been established.

**8.2 Exposure controls**

*Occupational exposure controls*

- 8.2.1 Respiratory protection : Dust respirator, if dusting occurs  
Hand protection : General working gloves are acceptable.  
Eye protection : Safety glasses  
Other protective equipment : Eye bath and safety shower. Adequate ventilation.

**8.2.2 Environmental exposure controls**

None established.

**9. PHYSICAL AND CHEMICAL PROPERTIES**

Appearance	: Red brown, fine powder
Odour	: Odourless
Molecular weight	: > 10,000
Relative density	: 0.20 to 0.80
Self-ignition temperature	: 500C (ASTM D1929)
Boiling point	: Does not boil
Melting point	: Does not melt
Solubility	: Not soluble in water

10. STABILITY AND REACTIVITY	
General	: Stable
Conditions to avoid	: None known
Materials to avoid	: Strong acids and base, halogens, acyl halides
Hazardous decomposition products	: Carbon monoxide, carbon dioxide, formaldehyde and phenol derivatives upon decomposition.
Hazardous polymerisation	: Will not occur.
11. TOXICOLOGICAL INFORMATION	
<p><i>Effects from inhalation:</i> Upper respiratory tract irritation – signs/symptoms may include sneezing, cough, and nasal discharge.</p> <p><i>Effects from ingestion:</i> Gastrointestinal irritation.</p> <p><i>Effects from skin contact:</i> Mechanical skin irritation. May result in itching.</p> <p><i>Effects from eye contact:</i> Mechanical eye irritation. Signs and symptoms may include pain, redness and tears.</p> <p><i>Significant data with possible relevance to human health</i> Formaldehyde has been shown to cause cancer in laboratory animals and mutations in a variety of in-vitro test systems. The relevance of these findings for human is unknown. Formaldehyde is listed as a carcinogen by IARC, NTP and OSHA.</p>	
12. ECOLOGICAL INFORMATION	
Ecotoxicity	: None known.
Mobility	: Does not dissolve in water.
Persistence and degradability	: Not determined.
Bioaccumulative potential	: Unknown
13. DISPOSAL CONSIDERATIONS	
Dispose off in accordance with appropriate National and local regulations.	
14. TRANSPORT INFORMATION	
UN Number ADR/RID	: Not restricted for transportation
IMDG/ICAO	: Not restricted for transportation
MONT-BLANC	: Not restricted for transportation

15. REGULATORY INFORMATION				
<table> <tr> <td data-bbox="239 235 606 280">Symbol</td> <td data-bbox="606 235 1535 280">: None</td> </tr> <tr> <td data-bbox="239 302 606 347">Label text</td> <td data-bbox="606 302 1535 515">           : CAUTION! May undergo spontaneous smouldering if stored or heated in bulk above 35C under conditions allowing air ingress to the product.            Store in cool, well-ventilated area.            Do not store in the sun            Do not dry in package – refer special drying instructions.            FOR INDUSTRIAL USE ONLY         </td> </tr> </table>	Symbol	: None	Label text	: CAUTION! May undergo spontaneous smouldering if stored or heated in bulk above 35C under conditions allowing air ingress to the product. Store in cool, well-ventilated area. Do not store in the sun Do not dry in package – refer special drying instructions. FOR INDUSTRIAL USE ONLY
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16. OTHER INFORMATION				
<p><i>Recommended usage and restrictions:</i>  Please consult the product and/or applications information bulletins for this product.</p> <p><i>The information contains herein is correct to the best of our knowledge. We disclaim any liability as to the recommendations or completeness of the information. The final evaluation on the fitness of use lies on the user' digression. All material has hidden hazards and should be used with extreme care. Even though various hazards had been listed herein, we do not warranty that those are the only existing hazards.</i></p>				