MATERIAL SAFETY DATA SHEET

Effective Date: MAY 14, 2013 Code: Brake Lining Material

SECTION 1 - PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME: ASBESTOS-FREE BRAKE SHOE LINING MATERIAL

IDENTIFY BY EDGE CODES: PX9A

MANUFACTURER'S NAME: Sangsin Brake Co., LTD.
1-37, Puk-Ri, Nongong-Eup,
Dalsong-Gun, Daegu, Korea (Zip711-713)

TELEPHONE NUMBER: 82-53-615-0101

FAX NUMBER: 82-53-614-1709

E-mail: csrain@sangsin.com

SUPPLIER'S NAME: Rayloc Division of Genuine Parts Company
3100 Windy Hill Road
Atlanta, GA 30339

Home-Page: http://www.sangsin.com

SECTION 2: Hazards Identification

2.1 Emergency danger, Harmful information:

<table>
<thead>
<tr>
<th>Ingredients</th>
<th>NFPA Index</th>
<th>Health</th>
<th>Fire</th>
<th>Reaction</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Aramid pulp</td>
<td>1</td>
<td>1</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>2. Phenolic Resin</td>
<td>2</td>
<td>1</td>
<td>1</td>
<td></td>
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<tr>
<td>3. Mica</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>4. Barium sulfate</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>5. Calcium carbonate</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>6. Aluminum oxide</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>7. Antimony trioxide</td>
<td>2</td>
<td>0</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>8. Other substance</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

2.2 Eyes hazards

Short term affection: It could be stimulation when contact by dust powder

Long term affection: Not Application

2.3 Skin hazards

Short term affection: It could be stimulation when contact by dust powder

Long term affection: Not Application
2.4 Breathing hazards
Short term affection: It could be stimulation when contact by dust powder

Long term affection: Not Application

2.5 Ingestion hazards
Short term affection: It could be stimulation when contact by dust powder

Long term affection: Not Application

2.6 Carcinogenicity

<table>
<thead>
<tr>
<th>Ingredients</th>
<th>NTP</th>
<th>IARC</th>
<th>OSHA</th>
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<td>No information</td>
<td>No information</td>
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<tr>
<td>2. Phenolic Resin</td>
<td>No information</td>
<td>No information</td>
<td>No information</td>
</tr>
<tr>
<td>3. Mica</td>
<td>No information</td>
<td>No information</td>
<td>No information</td>
</tr>
<tr>
<td>4. Barium sulfate</td>
<td>No information</td>
<td>No information</td>
<td>No information</td>
</tr>
<tr>
<td>5. Calcium carbonate</td>
<td>No information</td>
<td>No information</td>
<td>No information</td>
</tr>
<tr>
<td>6. Aluminum oxide</td>
<td>No information</td>
<td>No information</td>
<td>No information</td>
</tr>
<tr>
<td>7. Antimony trioxide</td>
<td>No information</td>
<td>Group 2B</td>
<td>No information</td>
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<tr>
<td>8. Other substance</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

2.7 Label elements Hazard pictograms

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SECTION 3: COMPOSITION/ DETAILS OF COMPONENTS
==========================================================================

3.1 Description: This friction material is a multi-ingredient system with resins and caoutchouc as a binding agent in a cured vulcanized form.

3.2 Ingredients(s)

<table>
<thead>
<tr>
<th>Ingredients</th>
<th>CAS No.</th>
<th>Components</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Aramid pulp</td>
<td>26125-61-1</td>
<td>1-5</td>
</tr>
<tr>
<td>2. Phenolic Resin</td>
<td>9003-35-4</td>
<td>5-15</td>
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<tr>
<td>3. Mica</td>
<td>12001-26-2</td>
<td>1-5</td>
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<tr>
<td>4. Barium sulfate</td>
<td>7727-43-7</td>
<td>20-30</td>
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<td>5. Calcium carbonate</td>
<td>13397-26-7</td>
<td>10-20</td>
</tr>
<tr>
<td>6. Aluminum oxide</td>
<td>1344-28-1</td>
<td>1-5</td>
</tr>
<tr>
<td>7. Antimony trioxide</td>
<td>1309-64-4</td>
<td>1-3</td>
</tr>
<tr>
<td>8. Other substance</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

3.3 Additional notes: Other substance is not application hazardous chemicals, toxic exposure limits, corresponding to the environmental impact.
SECTION 4: FIRST AID MEASURES

4.1 Description of first aid measures

Eye contact: Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids.

Check for and remove any contact lenses. Continue to rinse for at least 10 minutes.

Get Medical attention.

Ingestion: Get medical attention immediately.

Skin contact: Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes.

Continue to rinse for at least 10 minutes. Get medical attention.

Inhalation: Remove victim to fresh air and keep at rest in a position comfortable for breathing.

If it is suspected that fumes are still present, the rescuer should wear and appropriate mask or self-contained breathing apparatus.

If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel.

SECTION 5: FIRE-FIGHTING MEASURES

5.1 Flash point: No information

5.2 Nature ignition point: No information

5.3 Explosion lower value/ Explosion upper value: No information

5.4 The fire Service Act regulation: does not apply

5.5 Suitable extinguishing media: Use dry chemical, CO2, water spray (fog) or foam.

5.6 Unsuitable extinguishing media: No information

5.7 Hazardous combustion products: No information

SECTION 6: ACCIDENTAL RELEASE MEASURES

6.1 Protecting for Personal: does not apply

6.2 Protecting for environment: does not apply
6.3 Purification or remove method: does not apply

SECTION 7: HANDLING AND STORAGE

7.1 Protective measures: Put on appropriate personal protective equipment. Do not swallow. Avoid contact with eyes, skin and clothing. Avoid breathing vapour or mist.

7.2 Conditions for safe storage, including any incompatibilities:
Heat prohibition, caution: Flammables, avoids direct sunlight, store in cooling and dry location.

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 Engineering measures: No information

8.2 Respiratory protection: Use a properly fitted, air-purifying or air-fed respirator.

8.3 Eye protection: Use a properly fitted protecting glasses.

8.4 Hand protection: 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.

8.5 Body protection: Personal protective equipment of the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.

8.6 Cautions: Cleaning hand after working

8.7 Occupational exposure limits
*Because there is no data exposure standards for products, constituent data listed.

1) Armid pulp
   Industrial safety and health acts:
   - TWA: Not been enacted
   Dupont enactment
   - 2 fibres/cc(respirable)
   - 5 mg/m³ (Non-fibrous particulate/Non-respirable fibers)
   * This material was OSHA regulatory provisions has not been established.
   This material was enacted by the manufacturing company DuPONT

2) Phenolic Resin
   Industrial safety and health acts:
   - TWA: Not been enacted

3) Mica
   Industrial safety and health acts:
-TWA: Not been enacted

20 mppcf OSHA TWA (Respirable particulate) (<1% Crystalline silica)
3 mg/m³ OSHA TWA (Respirable particulate) (<1% Crystalline silica)
(June 30, 1993 invalidation by 58FR 35338)
3 mg/m³ ACGIH TWA (Respirable fraction)
3 mg/m³ NIOSH Recommended TWA 10 hours (1% quartz) (Respirable fraction)

4) Barium sulfate
Industrial safety and health acts:
-TWA: Not been enacted

5 mg/m³ OSHA TWA (Respirable fraction)
15 mg/m³ OSHA TWA (Total dust)
10 mg/m³ OSHA TWA (Total particulate) (Invalidated by 58 FR 35338, June 30, 1993)
10 mg/m³ ACGIH TWA
5 mg/m³ NIOSH Recommended TWA 10 hours (Respirable fraction)
10 mg/m³ NIOSH Recommended TWA 10 hours (Total dust)
4 mg/m³ DFG MAK (Inhaled dust fraction)
1.5 mg/m³ DFG MAK (Respirable dust fraction)

5) Calcium carbonate
Industrial safety and health acts:
-TWA: Not been enacted

6) Aluminum oxide
Industrial safety and health acts:
-TWA: 10 mg/m³

5 mg/m³ OSHA TWA (Inhaled dust fraction)
15 mg/m³ OSHA TWA (Total dust)
10 mg/m³ OSHA TWA (Total dust) (Invalidated by 58 FR 35338, June 30, 1993)
10 mg/m³ ACGIH TWA
1.5 mg/m³ DFG MAK (Respirable dust fraction) (Peak limitation category – II, Deviation factor 8)

7) Antimony trisulfide
Industrial safety and health acts:
-TWA: Not been enacted

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SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES
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9.1 Information on basic physical and chemical properties

Appearance: Solid

Colour: Gray

Odour: Acrid

pH: No information
Solubility: Insoluble in water
Boiling point and boiling range: Not available
Melting point: Not available
Explosive: Not explosive
Oxidative: Not available
Vapour pressure: Not available
Specific gravity: No information
Partition coefficient: Not available
Decomposition temperature: Not available
Viscosity: Not available
Molecular Weight: Not available

SECTION 10: STABILITY AND REACTIVITY

Chemical stability: The product is stable.
Conditions to avoid: Avoid all possible sources of ignition.
Hazardous decomposition products: Not available

SECTION 11: TOXICOLOGICAL INFORMATION

* The material constituent material listed, toxicological impact for the product

1) Aramid pulp
A. Information on the likely routes of exposure
   No information
B. Health hazard information
   Acute toxicity
   Epigram
   ALD/rat:7500mg/kg more than
      No information
   Dermal
      No information
      None-irritating (rabbit)
   Inhalation
      None-irritating
   Skin corrosive or irritant
      Not applicable
   Serious eye damage or irritant
      Not applicable
   Respiratory sensitization
      Not applicable
   Skin sensitization
      Not applicable
   Germ cell mutagenicity
      Not applicable
   Reproduction-toxicity
      Not applicable
Particular target organ toxicity (once exposure) Not applicable
Particular target organ toxicity (repeat exposure) Not applicable
Absorb harmful To the inhalation of high concentration of respirable particulate in the lungs can cause severe damage.

*OSHA for this material to limit the provision has been established is not.
Limit the amount recommended in Korea toward manufacturing company DuPont (DuPont) was enacted by.

2) Phenolic resin
A. Information on the likely routes of exposure No information

B. Health hazard information
Acute toxicity
Epigram LD50>5000 mg/kg Rat *Reference: TOMES;RTECS
Dermal LD50>2000 mg/kg *Reference: TOMES;RTECS
Inhalation No information
Skin corrosive or irritant Irritating skin
Serious eye damage or irritant Irritating eye
Respiratory sensitization No information
Skin sensitization No information
Germ cell mutagenicity No information
Reproduction-toxicity No information
Particular target organ toxicity (once exposure) Inhalation irritating airway
Particular target organ toxicity (repeat exposure) No information
Absorb harmful No information

3) Mica
Industrial safety and health acts:
-TWA: Not been enacted

20 mppcf OSHA TWA(Respirable particulate)(1%Crystalline silica)
3mg/m³ OSHA TWA(Respirable particulate)(<1%Crystalline silica) (June 30, 1993 invalidation by 58F 353338)
3mg/m³ ACGIH TWA(Respirable fraction)
3mg/m³ NIOSH Recommended TWA 10hours(<1%quartz)(Respirable fraction)

4) Barium sulfate
A. Information on the likely routes of exposure No information
B. Health hazard information
Acute toxicity
Epigram LD50>3000 mg/kg Rat *Reference: (IUCLID)
Dermal No information
Inhalation
Skin corrosive or irritant
Serious eye damage or irritant
Respiratory sensitization
Skin sensitization
Germ cell mutagenicity
Reproduction-toxicity
Particular target organ toxicity
(once exposure)
Particular target organ toxicity
(repeat exposure)
Absorb harmful

No information
People in the mild irritation.
People in the mild irritation.
No information
No information
No information
No information
No information
No information
No information

5) Calcium carbonate
A. Information on the likely routes of exposure
Short-term exposure
to mild-irritation

B. Health hazard information
Acute toxicity
Epigam
Dermal
Inhalation
Skin corrosive or irritant
Serious eye damage or irritant
Respiratory sensitization
Skin sensitization
Germ cell mutagenicity
Reproduction-toxicity
Particular target organ toxicity
(once exposure)
Particular target organ toxicity
(repeat exposure)
Absorb harmful

No information
No information
No information
No information
No information
No information
No information
No information
No information
No information

6) Aluminum oxide
A. Information on the likely routes of exposure
Irritation metal fume fever,
difficulty in breathing, lung damage may cause.
That can cause itching
May cause mechanical irritation

B. Health hazard information
Acute toxicity
Epigam
Dermal
Inhalation
Skin corrosive or irritant
Serious eye damage or irritant
Respiratory sensitization
Skin sensitization
Germ cell mutagenicity

LD>5000 mg/kg Rat
No information
No information
No information
No information
No information
No information
No information
Mutation test
negative
Reproduction-toxicity
Particular target organ toxicity(once exposure)

Particular target organ toxicity(repeat exposure)
Absorb harmful

7) Antimony trisulfide
A. Information on the likely routes of exposure

irritation, nose bleeds, metal fume fever, stomach pain, loss of voice, difficulty in breathing, lung damage, heart damage, nausea, vomiting, diarrhea, shortness of breath, can cause lung congestion, convulsions and coma.

B. Health hazard information
Acute toxicity
Epigram LD50>34600 mg/kg Rat
Dermal No information
Inhalation No information
Skin corrosive or irritant irritation: rabbit’s eye mild irritation mild-irritation(rabbit)
Serious eye damage or irritant No information
Respiratory sensitization No information
Skin sensitization Chromosome aberration test negative
Germ cell mutagenicity No information
Reproduction-toxicity
Particular target organ toxicity(once exposure)

Particular target organ toxicity(repeat exposure)
Absorb harmful

==========================================================================
SECTION 12: ECOLOGICAL INFORMATION
==========================================================================
* The material constituent material listed, Environmental impact for the product
  1) Aramid pulp
A. Ecotoxicity
Fish: No information
Shellfish: No information
Bird: No information

B. Persistence and degradability
Persistence: No information
Degradability: No information

C. Bioconcentration
Condensability: No information
Biodegradable: No information

D. Mobility in soil
No information

E. Other adverse effects
No information

2) Phenolic resin
A. Ecotoxicity
Fish: No information
Shellfish: No information
Bird: No information

B. Persistence and degradability
Persistence: No information
Degradability: No information

C. Bioconcentration
Condensability: No information
Biodegradable: No information

D. Mobility in soil
No information

E. Other adverse effects
No information

3) Mica
A. Ecotoxicity
Fish: No information
Shellfish: No information
Bird: No information

B. Persistence and degradability
Persistence: Not applicable
Degradability: No information

C. Bioconcentration
Condensability: No information
Biodegradable: No information

D. Mobility in soil
No information

E. Other adverse effects
No information

4) Barium sulfate
A. Ecotoxicity
Fish: No information
Shellfish: EC50 32 mg/l 48 hr
Daphnia magna
*Reference: ECOTOX
EC50 1890.263 mg/l
96 hr
*Reference: ECOSAR
Bird

B. Persistence and degradability
Persistence: log Kow 0.63
Degradability: No information

C. Bioconcentration
Condensability: BCF 3.162
Biodegradable: No information
D. Mobility in soil
E. Other adverse effects

5) Calcium carbonate
A. Ecotoxicity
Fish
LC50 554000 mg/l 96 hr
*Reference: QSAR

Shellfish
LC50 446000 mg/l 48 hr
*Reference: QSAR

Bird
EC50 220000 mg/l 96 hr
*Reference: QSAR

B. Persistence and degradability
Persistence
log Kow -2.12

Degradability
No information

C. Bioconcentration
Condenasabilty
BCF 3.162
*Reference: QSAR

Biodegradable
No information

D. Mobility in soil
No information

E. Other adverse effects
No information

6) ALUMINUM OXIDE
A. Ecotoxicity
Fish
No information

Shellfish
No information

Bird
No information

B. Persistence and degradability
Persistence
No information

Degradability
No information

C. Bioconcentration
Condenasabilty
No information

Biodegradable
No information

D. Mobility in soil
No information

E. Other adverse effects
No information

7) ANTIMONY trisulfide
A. Ecotoxicity
Fish
LC50 80 mg/l 96 hr

Shellfish
EC50 423.45 mg/l 48 hr

Bird
EC50 67 mg/l 72 hr

B. Persistence and degradability
Persistence
No information

Degradability
No information

C. Bioconcentration
Condenasabilty
No information

Biodegradable
No information

D. Mobility in soil
No information

E. Other adverse effects
No information
SECTION 13: DISPOSAL CONSIDERATION

Waste Management Act: Not designated waste

Product methods of disposal: The generation of waste should be avoided or minimized wherever possible.
Significant quantities of waste product residues should not be disposed of via the foul sewer but processed in a suitable effluent treatment plant.
Dispose of surplus and non-recyclable products via a licensed waste disposal contractor.
Disposal of these product, solution and any by-product should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements.

Precautions: Disposal precautions is work wear and personal protection targets equipments.

SECTION 14: TRANSPORT INFORMATION

Dangerous shipping transportation and store regulation restrict: None specified
Transport precautions: Heat prohibit
International Air Transport Association(IATA) regulations: None specified

SECTION 15: REGULATORY INFORMATION

<table>
<thead>
<tr>
<th>Index</th>
<th>Industrial safety and health acts</th>
<th>Toxic chemicals control acts</th>
<th>Safety control of dangerous substances acts</th>
<th>Waste Management</th>
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</thead>
<tbody>
<tr>
<td>1. Aramid pulp</td>
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<tr>
<td>3. Mica</td>
<td>Working environment measurement substances</td>
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<td>4. Barium sulfate</td>
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<td>5. Calcium carbonate</td>
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<td>No information</td>
<td>Specified waste</td>
</tr>
<tr>
<td></td>
<td>Aluminum oxide</td>
<td>Working environment measurement substances, managed hazardous substances, exposure limits set material, special health diagnostics substances</td>
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<td>No information</td>
</tr>
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<td>----------------</td>
<td>---------------------------------------------------------------------------------</td>
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</tr>
<tr>
<td>7.</td>
<td>Antimony trioxide</td>
<td>Working environment measurement substances, managed hazardous substances, exposure limits set material, special health diagnostics substances</td>
<td>Toxic</td>
<td>No information</td>
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<td>8.</td>
<td>Other substance</td>
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==========================================================================
SECTION 16: OTHER INFORMATION
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Source of data: Making the MSDS, Furnishing standard
(Ministry of Labor notification Vol. 97-27, October, 1997)
MSDS making report(Industrial safety and health acts, November, 1996)
MSDS making report of Mixture(Industrial safety and health acts, November, 1996)
Received from each raw materials supplier
Korea Industrial Safety Corporation Material Safety Data Sheet

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