DURA-BALL XP

Material Safety Data Sheet
Dura-Ball XP Polyurethane Polymer

January 2015

1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

<table>
<thead>
<tr>
<th>Product Name</th>
<th>Dura-Ball XP</th>
</tr>
</thead>
<tbody>
<tr>
<td>MSDS Prepared By</td>
<td>Siftex Equipment Company Inc.</td>
</tr>
<tr>
<td>Generic Chemical Name</td>
<td>Polyurethane polymer</td>
</tr>
<tr>
<td>Product Type</td>
<td>Polyether Aromatic</td>
</tr>
<tr>
<td>Molecular Formula</td>
<td>Not Applicable</td>
</tr>
<tr>
<td>MSDS No.</td>
<td>21662087-2322435-3032211-102103</td>
</tr>
</tbody>
</table>

2. HAZARDS IDENTIFICATION

Appearance: Natural Pellets
Odor: Faint
Principal Hazard: This material has no known health hazards.

3. COMPOSITION/INFORMATION ON INGREDIENTS

Hazardous Ingredients: This material has no known hazards under applicable laws.

4. FIRST-AID MEASURES

Inhalation: Remove exposed person to fresh air if adverse effects are observed.
Eyes: Treat as any foreign particulate matter. If hot melted material should splash into the eyes, flush eyes immediately with water for 15 minutes while holding the eyelids open. See a physician for treatment.
Skin: Wash with soap and water. Get medical attention if irritation develops.
Oral: Treat symptomatically. Get medical attention.
Additional Information: Note to physician: Treat symptomatically

5. FIRE FIGHTING MEASURES

Flash Point: 400° C /752° F Test method unavailable (Typical)
Extinguishing Media: Water spray, dry chemical, foam. C02 may be ineffective on large fires.
Fire-Fighting Procedures: Wear self-contained NIOSH breathing apparatus and protective clothing. Water may cause splattering.
Unusual Fire and Explosion Hazards: Solid does not readily release flammable vapors. Thermoplastic polymers can burn. Protect product from flames; maintain proper clearance when using heat devices, etc. Irritating or toxic substances will be emitted upon burning, combustion or decomposition. Large masses of molten polymer held at elevated temperatures for extended periods of time may auto-ignite. See Section 10 for additional information.
6. ACCIDENTAL RELEASE MEASURES
Spill Procedures: Pick up free solid for recycle and/or disposal.

7. HANDLING AND STORAGE
Pumping Temperature: Not applicable.
Maximum Handling Temperature: Loading and unloading operations may cause nuisance dust to form. Refer to Processing Guide and/or contact your local Technical Service representative for melt processing temperature range. For most thermoplastic polyurethanes, melt processing is in the range of 177 - 232° C (350 - 450° F), however, some products may process at different temperatures. Heating above 232° C (450° F) can generate hazardous decomposition products (see Section 10). Conduct any operations emitting fumes or vapors (including thermo-forming, heat joining, cutting and or sealing of articles and clean up) under well-ventilated conditions. Avoid breathing process vapors. Do not hold product for extended periods of time at elevated temperatures or allow thick masses of hot polymer to accumulate because they can decompose emitting hazardous gasses. Do not taste, swallow, or chew products. Wash thoroughly after processing. Do not store or consume food in processing areas. Fume condensates may include hazardous contaminants from additives. Condensate may be combustible and should be periodically removed from exhaust hoods, ductwork, and other surfaces. Impervious gloves should be worn during cleanup operations to prevent skin contact. Post thermal processing activities necessary to produce molded articles (such as cutting, sanding, sawing, grinding, drilling, or regrinding) may create dust or “fines.” Powders, dust, and/or fines may pose a dust explosion hazard. Electrostatic buildup may occur when pouring or transferring this product from its container. The spark produced may be sufficient to ignite vapors of flammable liquids. Always transfer product by means which avoid static buildup. Avoid pouring product directly from its container into combustible or flammable solvent. The major off-gasses from normal melt processing are expected to be water vapor and carbon dioxide. Other trace volatile organic components may also be emitted. Wash thoroughly after handling. Dispose of packaging or containers in accordance with local, regional, national and international regulations.
Maximum Storage Temperature: Not determined.
Storage Procedures: Use good housekeeping measures to prevent dust accumulations. Store in well ventilated place.
Maximum Loading Temperature: Not determined.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION
Exposure Limits: None established.
Other Exposure Limits: None known.
Engineering Controls: Prevent inhalation by providing effective general and, when necessary, local exhaust ventilation to draw spray, aerosol, fume, mist, or vapor away from workers.
Gloves Procedures: Use good industrial hygiene practices to avoid skin contact. If contact with the material may occur wear chemically protective gloves.
Eye Protection: Safety Glasses.
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Respiratory Protection: Cutting operations may create small particles from this product. If inhalation of particulates cannot be avoided, wear a dust respirator. Consult with an industrial hygienist to determine the appropriate respiratory protection for your specific use of this material. A respiratory protection program compliant with all applicable regulations must be followed whenever workplace conditions require the use of a respirator.

Clothing Recommendation: Long sleeve shirt is recommended.

9. PHYSICAL AND CHEMICAL PROPERTIES

<table>
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<tr>
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<th>Value</th>
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<tr>
<td>Autoignition Point</td>
<td>&gt;407° C (&gt;764.6° F)</td>
</tr>
<tr>
<td>Specific Gravity</td>
<td>1:1 (20°C)</td>
</tr>
<tr>
<td>Appearance</td>
<td>Natural Pellets</td>
</tr>
<tr>
<td>Water Solubility</td>
<td>Insoluble</td>
</tr>
<tr>
<td>pH</td>
<td>Not Applicable</td>
</tr>
<tr>
<td>Odor</td>
<td>Faint</td>
</tr>
<tr>
<td>Odor Threshold</td>
<td>Not Applicable</td>
</tr>
<tr>
<td>Flash Point</td>
<td>400°C/752°F Test method unavailable (Typical)</td>
</tr>
<tr>
<td>Explosion Data</td>
<td>Material does not have explosive properties.</td>
</tr>
<tr>
<td>Melting/Freezing Point</td>
<td>Not determined.</td>
</tr>
<tr>
<td>Boiling Point</td>
<td>Not determined.</td>
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The above data are typical values and do not constitute a specification. Vapor pressure data are calculated unless otherwise noted.

10. STABILITY AND REACTIVITY

Stability: Material is normally stable at moderately elevated temperatures and pressures.

Decomposition Temperature: Not determined.

Incompatibility: None known, avoid contact with reactive chemicals.

Polymerization: Will not occur.

Thermal Decomposition: Smoke, carbon monoxide, carbon dioxide, aldehydes and other products of incomplete combustion. Under combustion conditions, oxides of the following elements will be formed: nitrogen. May also include isocyanates and small amounts of hydrogen cyanide.

Conditions to Avoid: Not determined.

11. TOXICOLOGY INFORMATION

ACUTE EXPOSURE

Eye Irritation: Not expected to cause eye irritation. Based on data from similar materials. Particulates may cause mechanical irritation. At processing or combustion temperatures this product may emit fumes and vapors that cause irritation, possibly severe, to the eyes.

Skin Irritation: Not expected to be a primary skin irritant. Based on data from similar materials. Contact with heated polymer may cause thermal burns and adhesion of solidified product to the skin.

Respiratory Irritation: Not expected to cause nose, throat and lung irritation. Based on data from similar materials. At processing or combustion temperatures this product may emit fumes and vapors that cause irritation, possibly severe, to the respiratory tract, eyes, or skin.
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Dermal Toxicity: The LD50 in rabbits is > 2000 mg/Kg. Based on data from components or similar materials. Inhalation Toxicity Overexposure to vapors or mist may cause dizziness, headache, nausea, and/or flu-like symptoms. Avoid the inhalation of dust, mists, or vapors.

Oral Toxicity: The LD50 in rats is > 10,000 mg/Kg. Based on data from components or similar materials.

Dermal Sensitization: No data available to indicate product or components may be a skin sensitizer.

Inhalation Sensitization: No data available to indicate product or components may be respiratory sensitizers.

CHRONIC EXPOSURE

Chronic Toxicity: No data available to indicate product or components present at greater than 1% are chronic health hazards.

Carcinogenicity: No data available to indicate any components present at greater than 0.1% may present a carcinogenic hazard.

Mutagenicity: No data available to indicate product or any components present at greater than 0.1% are mutagenic or genotoxic.

Reproductive Toxicity: No data available to indicate either product or components present at greater than 0.1% that may cause reproductive toxicity.

Teratogenicity: No data available to indicate product or any components contained at greater than 0.1% may cause birth defects.

ADDITIONAL INFORMATION

Other: Under decomposition conditions, isocyanates may be generated from this product. Isocyanates can cause skin sensitization and/or respiratory sensitization. Pre-existing skin conditions may be aggravated by prolonged or repeated exposure. Persons with sensitive airways (e.g., asthmatics) may react to vapors.

12. ECOLOGICAL INFORMATION

ENVIRONMENTAL TOXICITY

Freshwater Fish Toxicity: Not determined.

Freshwater Invertebrates Toxicity: Not determined.

Algal Inhibition: Not determined.

Saltwater Fish Toxicity: Not determined.

Saltwater Invertebrates Toxicity: Not determined.

Bacteria Toxicity: Not determined.

Miscellaneous Toxicity: Not determined.

ENVIRONMENTAL FATE

Biodegradation: Adequate data is not available to estimate the biodegradation potential of this material.

Bioaccumulation: Less than 1.0% of the components bioconcentrate in aquatic organisms.

Soil Mobility: Not determined.
13. DISPOSAL CONSIDERATIONS
Waste Disposal: This material, if discarded, is not a hazardous waste under RCRA Regulation 40 CFR 261. Treatment, storage, transportation, and disposal must be in accordance with applicable Federal, State/Provincial, and Local regulations.

14. TRANSPORT INFORMATION
ICAO/IATA I: Not regulated.
ICAO/IATA II: Not regulated.
IMDG: Not regulated.
IMDG EMS Fire: Not applicable.
IMDG EMS Spill: Not applicable.
IMDG MFAG: Not applicable.
MARPOL Annex II: Not determined.
USCG Compatibility: Not determined.
U.S. DOT Bulk: Not regulated.
DOT NAERG: Not applicable.
U.S. DOT Intermediate NAERG: Not applicable.
U.S. DOT Non-Bulk: Not regulated.
U.S. DOT Non-Bulk NAERG: Not applicable.

Canada: Not regulated.
Mexico: Not regulated.

Bulk Quantity: 85000 KG, 187391 lbs.
Intermediate Quantity: 11000 KG, 24251 lbs.
Non-Bulk Quantity: 400 KG, 882 lbs.

Review classification requirements before shipping materials at elevated temperatures.

15. REGULATORY INFORMATION
GLOBAL CHEMICAL INVENTORIES
USA: All components of this material are on the US TSCA Inventory or are exempt.
Other TSCA Reg.: None known.
EU: All components are in compliance with the EC Seventh amendment Directive 92 /32/EEC.
Japan: All components are in compliance with the Chemical Substances Control Law of Japan.
Australia: All components are in compliance with chemical notification requirements in Australia.
New Zealand: All components are in compliance with chemical notification requirements in New Zealand.
Canada: All components are in compliance with the Canadian Environmental Protection Act and are present on the
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Domestic Substances List.
Switzerland: All components are in compliance with the Environmentally Hazardous Substances Ordinance in Switzerland.
Korea: All components are in compliance in Korea.
Philippines: All components are in compliance with the Philippines Toxic Substances and Hazardous and Nuclear Wastes Control Act of 1990 (R.A. 6969).
China: All components of this product are listed on the Inventory of Existing Chemical Substances in China.
Taiwan: All components of this product are listed on the Taiwan inventory.

OTHER U.S. FEDERAL REGULATIONS
SARA Ext. Haz. Subst.: This product does not contain greater than 1.0% of any chemical substance on the SARA Extremely Hazardous Substances list.
SARA Section 313: This product does not contain greater than 1.0% (greater than 0.1% for carcinogenic substance) of any chemical substances listed under SARA Section 313.

SARA 311 Classifications: Acute Hazard: No
Chronic Hazard: No
Fire Hazard: No
Reactivity Hazard: No

CERCLA Hazardous Substances: None known.

STATE REGULATIONS
Cal. Prop. 65: This product contains chemicals(s) known to the state of California to cause cancer and/or birth defects. Call 440-943-4200 for additional information.

PRODUCT REGISTRATIONS
U.S. Fuel Registration: Not applicable.
Finnish Registration Number: Not Registered
Swedish Registration Number: Not Registered
Norwegian Registration Number: Not Registered
Danish Registration Number: Not Registered
Swiss Registration Number: Not Registered
Italian Registration Number: Not Registered
Miscellaneous Regulatory Information: Not determined.

16. OTHER INFORMATION
US NFPA Codes: Health - 2, Fire - 1, Reactivity - 0, Special - N/E
(N/E) - None established
HMIS Codes: Health - 0, Fire - 1, Reactivity - 0
Precautionary Labels: This material has no known health hazards.
**Revision Indicators:** This MSDS has no revisions since 25 May 2012

As the conditions or methods of use are beyond our control, we do not assume any responsibility and expressly disclaim any liability for any use of this product. Information contained herein is believed to be true and accurate but all statements or suggestions are made without warranty, expressed or implied, regarding accuracy of the information, the hazards connected with the use of the material or the results to be obtained from the use thereof. Compliance with all applicable federal, state, and local regulations remains the responsibility of the user.