

## Material Safety Data Sheet

**Identity:** (As Used on Label and List)  
**15 mm 'Star Blazer' Signal Cartridges, signal flares - red, white, green /Flares/**  
**UN Name: Cartridges, signal, UN No. 0312; Classification No. 1.4G**  
**Date: January 2011**

**Section I. Manufacturers name and address:**  
**Panda Industries, China**  
**Made exclusively for #735084 Alberta Inc. o/a Earth Management**

### Section II- Hazardous ingredients/ Identify information

Hazardous components - contains pyrotechnical composition - a mixture of oxidizer and fuel that will rapidly burn when ignited.

| Chemical Name:  | OSHA/PEL        | Other Limits %                  |
|---|-----------------|---------------------------------|
| <b>Barium Nitrate-</b><br>CAS# 1002-31-8<br>NIOSH: 'A poison by ingestion, subcutaneous or pertongal routes'  | <b>0.5mg/m3</b> | <b>Oral Tar. LD50: 355mg/kg</b> |
| <b>Strontium Nitrate-</b><br>Irritates to skin, eyes and mucous membranes.  |                 |                                 |
| <b>Potassium Nitrate-</b><br>CAS# 7757-79-1<br>Irratant to eyes and mucous membranes.   | <b>N/A</b>      | <b>No Data</b>                  |
| <b>Magnesium/Aluminum - Alloy</b>   | <b>N/A</b>      | <b>Oral Dog.LD50: 230mg/kg</b>  |
| <b>Magnesium Powder-</b><br>CAS# 7439-95-4<br>Though rated as an ingestible poison, most serious hazard is from burns.  | <b>15mg/m3</b>  | <b>Oral Rat:LD50:230mg/kg</b>   |
| <b>Black Powder-</b><br>Explosive in loose state. Most hazards come from heat abd explosion.  | <b>N/A</b>      | <b>N/A</b>                      |
| <b>Polyvinyl Chloride, PVC-</b><br>CAS# 9002-86-2<br>Hazards, if any, would be associated with non-reacted Vinyl Chloride Monomer, Suspected as cancer-causing agent. | <b>1ppm</b>     | <b>N/A</b>                      |

**Section III - Physical/Chemical Characteristics**

|                             |   |                                   |     |
|-----------------------------|---|-----------------------------------|-----|
| <b>Physical State-</b>      | Solid   |                                   |     |
| <b>Appearance and Odor:</b> | All pyrotechnic composition is contained in aluminum hole, inserted into a 18mm plastic body, placed in cardboard casing. Odorless. |                                   |     |
| <b>Boiling Point:</b>       | N/A   | <b>Specific Gravity- (H2O=1):</b> | N/A |
| <b>Melting Point:</b>       | N/A   | <b>Evaporation Rate:</b>          | N/A |
| <b>Solubility in Water:</b> | N/A   |                                   |     |

**Section IV - Fire and Explosive Hazard Data**

**Flash Point:**  
Pyrotechnic composition, auto-ignition point - approximately 180 C (350) F

**Extinguishing Media:**  
Flood with water, if small number of spilled pieces is involved. Do not use suffocation method, because composition provides its own oxygen.

**Special Fire Fighting Procedures:**  
Devices burn and explodes quickly and contains their own oxygen. Clear the surrounding area and keep away. Avoid fire extinguishing, if at least one shipping carton is involved. Use NIOSH/MSHA approved, self-contained, breathing apparatus when involved in fire fighting activities.

**Unusual Fire and Explosion Hazards:**  
Each item projects a solid flaming ball. Contact with strong acids and bases may cause fire or explosion.

**Section V - Reactivity Data**

**Stability:**  
Stable under normal conditions of handling and storage.

**Incompatibility (Materials to Avoid);**  
Exposure to water may cause deterioration. Devices should not be in any contact with strong acids and alkali bases.

**Conditions to Avoid:**  
Heat and open Flame, other sources of ignition. Continued exposure to moisture. Exposure to temperatures even or exceeding 71 C (160) F, may cause weakening of the plastic flare body.

**Hazardous Decomposition Products (By-products):**  
Carbon monoxide, Oxides of Barium, nitrogen, sulfur, magnesium, strontium, hydrogen monoxide.

**Hazardous Polymerization:**  
Will not occur.

|   |                              |                                   |
|---|------------------------------|-----------------------------------|
| <p><b>Section VI - Health Hazards Data</b></p>  |                              |                                   |
| <p><b>Route(s) of Entry:</b> <u>Inhalation</u></p> <p>Combustion gases, if ignited only</p>   | <p><u>Skin</u></p> <p>No</p> | <p><u>Ingestion</u></p> <p>No</p> |
| <p>In case star contents are ingested, drink lots of water and induce vomiting. Call an MD.</p> <p><b>Health Hazards (Acute &amp; Chronic):</b> Exposure to finished product does not pose any health hazard. Thermal burn hazard from accidental ignition is more significant.</p> <p><b>Carainogenicity:</b> N/A</p> <p><b>Signs &amp; Symptoms of Exposure:</b> Prolonged exposure to smoke, generated during shooting of cartridges may cause irritation of skin, eyes, mucous membranes and respiratory problems.</p> <p><b>Medical conditions Generally Aggravated by Exposure:</b> Persons with pre-existing respiratory problems should avoid inhalation of smoke. Inhalation of combustion gases may cause in an asthma syndrome.</p> <p><b>Emergency &amp; First Aid Procedures:</b> Move to fresh air. Call an MD if necessary.</p>  |                              |                                   |
| <p><b>Section VII - Precautions for Safe Handling &amp; Storage</b></p>   |                              |                                   |
| <p><b>Steps to be Taken in Case Material is Released or Spilled:</b> No Smoking, open flames or sparking in vicinity of broken or spilled item. Sweep up carefully spilled items in approved DOT container. Do not seal. Do not use vacuum cleaner. Wear NIOSH/MSHA approved dust respirator in dusty conditions. See CFR 1910.134. Wash all contaminated clothing. Contact: CHEMTREC 1-613-996-6666</p> <p><b>Waste Disposal Method:</b> Dispose by burning, in compliance with Federal and Local Regulations and Laws. Consult the proper authorities and agencies.</p> <p><b>Precautions to Be Taken in Handling and Storing:</b> Avoid near sources of high temperature, smoking or open flames. Avoid contact with strong acids and alkali bases. Keep shipping cartons cool and dry. Store in dry area, below 71 C (160) F.</p> <p><b>Other Precautions:</b> No chemical components are released during normal handling and storage. No health hazards are observed during normal handling.</p> |                              |                                   |
| <p><b>Section VIII - Control Measures:</b></p>  |                              |                                   |
| <p><b>Respiratory Protection:</b> None required</p> <p><b>Ventilation:</b> Local Exhaust: N/A, Mechanical(General): N/A Special: N/A</p> <p><b>Protective Gloves:</b> None required</p> <p><b>Eye Protection:</b> None required</p> <p><b>Other Protective Clothing &amp;/or Equipment:</b> N/A</p> <p><b>Work/Hygienic Practices:</b> No smoking in vicinity of items. Avoid exposure to open flame.</p>   |                              |                                   |
| <p><b>Section IX - Shipping Data</b></p>  |                              |                                   |
| <p><b>UN Name:</b> Cartridge, signal; <b>UN Class:</b> 1.4G; <b>compatibility Group:</b> G<br/> <b>Packing Group:</b> II <b>Packing instructions:</b> 135, <b>Label Required:</b> 1.4G</p>  |                              |                                   |