# Safety Data Sheet

## SECTION 1 – IDENTIFICATION

| Name, Address, and Telephone of the Responsible Party | SDS #: 1030  
|------------------------------------------------------|-----------------|
| Dyno Nobel Inc.  
2795 East Cottonwood Parkway, Suite 500  
Salt Lake City, Utah 84121  
Phone: 801-364-4800  
Fax 801-321-6703  
E-Mail: dnna.hse@am.dynonobel.com  
www.dynonobel.com | Date: 02/02/2017  
Supersedes: 07/15/2016 |

| Product Identifier | Product Form: Mixture  
|--------------------|----------------------|

<table>
<thead>
<tr>
<th>Product Name: Packeted Emulsion Explosives</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Trade Name(s):</th>
</tr>
</thead>
</table>
| DYNO® AP  
DYNO® AP PLUS  
DYNO® E5  
DYNO® SL  
DYNO® SL PLUS  
DYNO® TX  
DYNOSPLIT® AP  
DYNO® XTRA |

| POWERMITE®  
POWERMITE® Canadian  
POWERMITE® PLUS  
POWERMITE® RAISE BOMB™  
POWERMITE® SL  
POWERMITE® THERMO  
SEISPRO® |

## SECTION 2 – HAZARD(S) IDENTIFICATION

### Classification of the Substance or Mixture

**General Advice:** This is a packaged product that will not result in exposure to the contents under normal conditions of use. In the event of contact, administer first aid appropriate for symptoms present.

**Classification (GHS-US)**

Expl. 1.1  

H201

<table>
<thead>
<tr>
<th>Label Elements</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>GHS-US Labeling</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Hazard Pictograms (GHS-US):</th>
</tr>
</thead>
</table>

| GHS01  
GHS07 |

<table>
<thead>
<tr>
<th>Signal Word (GHS-US):</th>
</tr>
</thead>
</table>

| Danger |

<table>
<thead>
<tr>
<th>Hazard Statements (GHS-US):</th>
</tr>
</thead>
</table>

| H201 - Explosive; mass explosion hazard. |

<table>
<thead>
<tr>
<th>Precautionary Statements (GHS-US):</th>
</tr>
</thead>
</table>

| P210 - Keep away from heat, hot surfaces, open flames, sparks. - No smoking.  
P264 - Wash hands, forearms, and exposed areas thoroughly after handling.  
P280 - Wear eye protection, protective clothing, protective gloves. |
**Other Hazards**
**Hazards Not Otherwise Classified (HNOC):** None

### SECTION 3 - COMPOSITION/INFORMATION ON INGREDIENTS

<table>
<thead>
<tr>
<th>Mixture</th>
<th>Name</th>
<th>Product identifier</th>
<th>% (w/w)</th>
<th>Ingredient Classification (GHS-US)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Ammonium nitrate</td>
<td>(CAS No) 6484-52-2</td>
<td>50 - 75</td>
<td>Ox. Sol. 3, H272, Eye Irrit. 2A, H319</td>
</tr>
<tr>
<td></td>
<td>Sodium nitrate</td>
<td>(CAS No) 7631-99-4</td>
<td>8 - 22</td>
<td>Ox. Sol. 3, H272, Eye Irrit. 2A, H319</td>
</tr>
<tr>
<td></td>
<td>Aluminum</td>
<td>(CAS No) 7429-90-5</td>
<td>0 - 6</td>
<td>Comb. Dust, Flam. Sol. 1, H228, Water-react. 2, H261</td>
</tr>
<tr>
<td></td>
<td>Mineral oil</td>
<td>(CAS No) 64742-54-7</td>
<td>0 – 4</td>
<td>Asp. Tox. 1, H304</td>
</tr>
<tr>
<td></td>
<td>Sorbitan monooleate</td>
<td>(CAS No) 1338-43-8</td>
<td>0.2 – 1.5</td>
<td>Not Classified</td>
</tr>
<tr>
<td></td>
<td>Polymeric Emulsifier</td>
<td>(CAS No) 165526-49-8</td>
<td>0 – 3</td>
<td>Not Classified</td>
</tr>
</tbody>
</table>

Ingredients, other than those mentioned above, as used in this product are not hazardous as defined under current Department of Labor regulations, or are present in deminimus concentrations (less than 0.1% for carcinogens, less than 1.0% for other hazardous materials).

Full text of H-phrases: see section 16

### SECTION 4 - FIRST AID MEASURES

**Description of First Aid Measures**

This is a packaged product that will not result in exposure to the contents under normal conditions of use. In the event of exposure, administer first aid appropriate for symptoms present.

**General:** Never give anything by mouth to an unconscious person. If exposed person feels unwell, seek medical advice.

**Inhalation:** Remove to fresh air and keep at rest in a position comfortable for breathing. Obtain medical attention if breathing difficulty persists.

**Skin Contact:** Remove contaminated clothing. Gently wash with plenty of soap and water followed by rinsing with water for at least 15 minutes. Wash contaminated clothing before reuse.

**Eye Contact:** Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Obtain medical attention if irritation develops or persists.

**Ingestion:** Rinse mouth. Do not induce vomiting. Immediately call a POISON CENTER or doctor/physician.

**Most Important Symptoms and Effects Both Acute and Delayed**

**General:** Avoid ingestion, contact with eyes or skin.

**Inhalation:** May cause respiratory irritation.

**Skin Contact:** May cause skin irritation.

**Eye Contact:** May cause serious eye irritation.

**Ingestion:** Seek medical attention.
Chronic Symptoms: None expected under normal conditions of use.

Indication of Any Immediate Medical Attention and Special Treatment Needed
If exposed or concerned, get medical advice and attention.

SECTION 5 - FIRE-FIGHTING MEASURES

Extinguishing Media
Suitable Extinguishing Media: DO NOT ATTEMPT TO FIGHT FIRES INVOLVING EXPLOSIVE MATERIALS. Evacuate all personnel to a predetermined safe location, no less than 2,500 feet in all directions.

Unsuitable Extinguishing Media: (See above)

Special Hazards Arising From the Substance or Mixture
Fire Hazard: Can explode or detonate under fire conditions. Burning material may produce toxic vapors.
Explosion Hazard: This product is an explosive with mass detonation hazard. Heating may cause an explosion.
Reactivity: Stable under normal conditions, may explode when subjected to fire, supersonic shock or high-energy projectile impact, especially when confined or in a large quantity.

Advice for Firefighters
Firefighting Instructions: DO NOT ATTEMPT TO FIGHT FIRES INVOLVING EXPLOSIVE MATERIALS. Evacuate all personnel to a predetermined safe location, no less than 2,500 feet in all directions. Guard against re-entry.

Protection During Firefighting: See above

Hazardous Combustion Products: Nitrogen Oxides (NOX), Carbon Monoxide (CO), Ammonia.

Reference to Other Sections: Refer to section 9 for flammability properties.

SECTION 6 - ACCIDENTAL RELEASE MEASURES

Personal Precautions, Protective Equipment and Emergency Procedures
General Measures: Avoid all contact with skin, eyes, or clothing. Keep away from heat/sparks/open flames/hot surfaces. No smoking. Eliminate every possible source of ignition.

For Non-Emergency Personnel
Protective Equipment: Use appropriate personal protection equipment (PPE).

For Emergency Personnel
Protective Equipment: Use appropriate personal protection equipment (PPE).

Environmental Precautions
Prevent entry to sewers and public waters.

Methods and Material for Containment and Cleaning Up
Methods for Cleaning Up: Protect from all ignition sources. If no fire danger is present, and product is undamaged and/or uncontaminated, pick up or sweep up and repackage product in original packaging or other clean DOT approved container. Ensure that a complete account of product has been made and is verified. Follow applicable Federal, State, and local spill reporting requirements.

Reference to Other Sections
See heading 8, Exposure Controls and Personal Protection. Concerning disposal elimination after cleaning, see section 13.

SECTION 7 - HANDLING AND STORAGE

Precautions for Safe Handling
This is a packaged product that will not result in exposure to the contents under normal conditions of use.

Additional Hazards When Processed: This product is an explosive and should only be used under the supervision of trained and licensed personnel. Use accepted safe industry practices when handling and using explosive materials. Unintended detonation of explosives or explosive devices can cause serious injury or death.

Hygiene Measures: Handle in accordance with good industrial hygiene and safety procedures. Wash hands and other exposed areas with mild soap and water before eating, drinking, or smoking and again when leaving work. Do not eat, drink or smoke when using this product.
Conditions for Safe Storage, Including Any Incompatibilities


Storage Conditions: Store in cool, dry, well-ventilated location. Store in compliance with Federal, State and local regulations. Keep away from heat, flame, ignition sources and strong shock. Do NOT store explosives in a detonator magazine or detonators in an explosive magazine. Keep containers closed. Explosives should be kept well away from initiating explosives; protected from physical damage; separated from oxidizing materials, combustibles, and sources of heat. Isolate from incompatibles.

Incompatible Materials: Corrosives (strong acids and strong bases or alkalis)

Specific End Use(s): For industrial applications.

SECTION 8 - EXPOSURE CONTROLS/PERSONAL PROTECTION

Control Parameters

<table>
<thead>
<tr>
<th>Ingredients:</th>
<th>Product identifier:</th>
<th>ACGIH TLV-TWA</th>
<th>OSHA PEL-TWA</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ammonium nitrate</td>
<td>(CAS No) 6484-52-2</td>
<td>None</td>
<td>None</td>
</tr>
<tr>
<td>Sodium nitrate</td>
<td>(CAS No) 7631-99-4</td>
<td>None</td>
<td>None</td>
</tr>
<tr>
<td>Aluminum</td>
<td>(CAS No) 7429-90-5</td>
<td>10 mg/m³ (dust)</td>
<td>15 mg/m³ (total)</td>
</tr>
<tr>
<td>Mineral Oil</td>
<td>(CAS No) 64742-54-7</td>
<td>5 mg/m³ (mist)</td>
<td>5 mg/m³ (mist)</td>
</tr>
<tr>
<td>Sorbitan monooleate</td>
<td>(CAS No) 1338-43-8</td>
<td>None</td>
<td>None</td>
</tr>
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<td>Polymeric Emulsifier</td>
<td>(CAS No) 165526-49-8</td>
<td>None</td>
<td>None</td>
</tr>
</tbody>
</table>

Ingredients, other than those mentioned above, as used in this product are not hazardous as defined under current Department of Labor regulations, or are present in deminimus concentrations (less than 0.1% for carcinogens, less than 1.0% for other hazardous materials).

Exposure Controls

Appropriate Engineering Controls: Ensure adequate ventilation, especially in confined areas. Ensure all national/local regulations are observed.


Materials for Protective Clothing: protective clothing.

Hand Protection: Protect against incidental skin contact.

Eye Protection: Chemical goggles or safety glasses.

Skin and Body Protection: Wear suitable protective clothing.

Respiratory Protection: Use a NIOSH-approved respirator or self-contained breathing apparatus whenever exposure may exceed established Occupational Exposure Limits.

Environmental Exposure Controls: Do not allow the product to be released into the environment.

SECTION 9 - PHYSICAL AND CHEMICAL PROPERTIES

Information on Basic Physical and Chemical Properties

Physical State: Solid

Appearance: White or pink opaque semi-solid, which will appear gray if product contains aluminum. Typically paper or plastic chub packaging.

Odor: Faint petroleum odor
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Odor Threshold: Not available
pH: Not applicable
Evaporation Rate: < 1
Melting Point: Not applicable
Freezing Point: Not applicable
Boiling Point: Not applicable
Flash Point: Not applicable
Auto-ignition Temperature: Not available
Decomposition Temperature: Ammonium nitrate: 210 °C (410 °F)
Flammability (solid, gas): Not applicable
Lower Flammable Limit: Not applicable
Upper Flammable Limit: Not applicable
Vapor Pressure: Not applicable
Relative Vapor Density at 20 ºC: Not applicable
Relative Density: Not applicable
Density: 0.95 - 1.25 g/cc
Specific Gravity: Not applicable
Solubility: Partially soluble in water
Partition coefficient: n-octanol/water: Not available
Viscosity: Not available
Explosive properties: Explosive; mass explosion hazard
Explosion Data – Sensitivity to Mechanical Impact: Not sensitive
Explosion Data – Sensitivity to Static Discharge: Not sensitive

SECTION 10 - STABILITY AND REACTIVITY
Reactivity: Stable under normal conditions, may explode when subjected to fire, supersonic shock or high-energy projectile impact, especially when confined or in a large quantity.
Chemical Stability: Stable under normal temperature and pressure.
Possibility of Hazardous Reactions: Hazardous polymerization will not occur.
Conditions to Avoid: Keep away from heat, flame, ignition sources and strong shock.
Incompatible Materials: Corrosives (strong acids and strong bases or alkalis).
Hazardous Decomposition Products: Nitrogen Oxides (NOx), Carbon Monoxide (CO), Ammonia

SECTION 11 - TOXICOLOGICAL INFORMATION
Information on Toxicological Effects - Product
Acute Toxicity: Not classified
LD50 and LC50 Data: Not available
Skin Corrosion/Irritation: Not classified
Serious Eye Damage/Irritation: May cause eye irritation.
Respiratory or Skin Sensitization: Not classified
Germ Cell Mutagenicity: Not classified
Teratogenicity: Not classified
Carcinogenicity: Not classified
Specific Target Organ Toxicity (Repeated Exposure): Not classified
Reproductive Toxicity: Not classified
Specific Target Organ Toxicity (Single Exposure): Not classified
Safety Data Sheet

Aspiration Hazard: Not classified
Symptoms/Injuries After Inhalation: May cause respiratory irritation.
Symptoms/Injuries After Skin Contact: May cause skin irritation.
Symptoms/Injuries After Eye Contact: Causes eye irritation.
Symptoms/Injuries After Ingestion: If ingested, seek medical attention.

Information on Toxicological Effects - Ingredient(s)
LD50 and LC50 Data:

<table>
<thead>
<tr>
<th>Ingredient</th>
<th>LD50 Oral Rat</th>
<th>LC50 Inhalation Rat</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sodium nitrate (7631-99-4)</td>
<td>&gt; 2000 mg/kg</td>
<td></td>
</tr>
<tr>
<td>Ammonium nitrate (6484-52-2)</td>
<td>2217 mg/kg</td>
<td>&gt; 88.8 mg/l/4h</td>
</tr>
<tr>
<td>Mineral Oil (64742-54-7)</td>
<td>&gt; 15000 mg/kg</td>
<td>&gt; 5000 mg/kg</td>
</tr>
</tbody>
</table>

SECTION 12: ECOLOGICAL INFORMATION

Toxicity: Not classified

<table>
<thead>
<tr>
<th>Ingredient</th>
<th>LC50 Fish 1</th>
<th>LC 50 Fish 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sodium nitrate (7631-99-4)</td>
<td>2000 mg/l (96 h)</td>
<td>994.4 - 1107 mg/l (96 h)</td>
</tr>
</tbody>
</table>

Persistence and Degradability
Sodium nitrate (7631-99-4)
Persistence and Degradability: Readily biodegradable in water.

Bioaccumulative Potential
Sodium nitrate (7631-99-4)
Bioaccumulative Potential: Not expected to bioaccumulate.

Ammonium nitrate (6484-52-2)
BCF fish 1: No bioaccumulation expected.

Mobility in Soil: Not available
Other Adverse Effects
Other Information: Avoid release to the environment.

SECTION 13 - DISPOSAL CONSIDERATIONS

Waste Disposal Recommendations: Disposal must comply with Federal, State and local regulations. If product becomes a waste, it is potentially regulated as a hazardous waste as defined under the Resource Conservation and Recovery Act (RCRA) 40 CFR, part 261. Review disposal requirements with a person knowledgeable with applicable environmental law (RCRA) before disposing of any explosive material.

Additional Information: None

SECTION 14 - TRANSPORT INFORMATION

14.1 In Accordance with DOT
: EXPLOSIVE, BLASTING, TYPE E

Proper Shipping Name
Hazard Class: 1.1D  
Identification Number: UN0241  
Label Codes: 1.1D  
Packing Group: II  
ERG Number: 112  

14.2 In Accordance with IMDG  
Proper Shipping Name: EXPLOSIVE, BLASTING, TYPE E  
Hazard Class: 1.1D  
Identification Number: UN0241  
Label Codes: 1.1D  
EmS-No. (Fire): F-B  
EmS-No. (Spillage): S-X  

14.3 In Accordance with IATA  
Proper Shipping Name: EXPLOSIVE, BLASTING, TYPE E  
Identification Number: UN0241  
Hazard Class: 1  
Label Codes: 1.1D  
ERG Code (IATA): 1L  

14.4 In Accordance with TDG  
Proper Shipping Name: EXPLOSIVE, BLASTING, TYPE E  
Packing Group: II  
Hazard Class: 1.1D  
Identification Number: UN0241  
Label Codes: 1.1D

SECTION 15 - REGULATORY INFORMATION

US Federal Regulations
Packaged Emulsion Explosives  
Bureau of Alcohol Tobacco & Firearms (BATF)  
Department of Transportation (DOT)  
Mine Safety & Health Administration (MSHA)

Canadian Regulations
Packaged Emulsion Explosives  

WHMIS Classification  

Note: Explosives are not regulated under WHMIS. They are subject to the regulations of the Explosives Act of Canada.

This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations (CPR) and the SDS contains all of the information required by CPR.

SECTION 16: OTHER INFORMATION, INCLUDING DATE OF PREPARATION OR LAST REVISION

Revision date: 02/02/2017  
Other Information: This document has been prepared in accordance with the SDS requirements of the OSHA Hazard Communication Standard 29 CFR 1910.1200.

GHS Full Text Phrases:
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