



Material Safety Data Sheet

Preparation Date: 22-Mar-2006

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SECTION 1 – PRODUCT AND COMPANY IDENTIFICATION

Supplier(s):

Orica Canada Inc.
Maple Street
Brownsburg, QC
For MSDS Requests: 450-533-4201

Orica USA Inc.
33101 E. Quincy Avenue
Watkins, CO 80137-9406
For MSDS Requests: 1 303-268-5000

Product Name:

POWERDITCH™ 1000, POWERPRO™, POWERFRAC™, GELDYN™, COALITE™ 8SU, DYNASHEAR™, GEL COALITE™ Z, & XACTEX™, GEOGEL

Product Code:

40053

Alternate Name(s):

Not available

UN-No:

UN0081

Recommended Use:

A detonator-sensitive gelatin explosive.

Emergency Telephone Number: FOR CHEMICAL EMERGENCIES (24 HOUR) INVOLVING TRANSPORTATION, SPILL, LEAK, RELEASE, FIRE OR ACCIDENTS: **IN CANADA CALL:** THE ORICA TRANSPORTATION EMERGENCY RESPONSE SYSTEM AT **1-877-561-3636. IN THE U.S. CALL: CHEMTREC 1-800-424-9300. IN THE U.S.:** FOR LOST, STOLEN, OR MISPLACED EXPLOSIVES CALL: BATF **1-800-800-3855.** FORM ATF F 5400.0 MUST BE COMPLETED AND LOCAL AUTHORITIES (STATE/MUNICIPAL POLICE, ETC.) MUST BE ADVISED.

SECTION 2 – HAZARD IDENTIFICATION

Emergency Overview:

Risk of explosion by shock, fire of other sources of ignition. Very toxic if swallowed. Irritating to eyes, respiratory system and skin. Oxidizing agent.

Appearance:

Light pink

Physical State:

Semi-Solid

Odor:

Characteristic

SECTION 3 – COMPOSITION/INFORMATION ON INGREDIENTS

| Chemical Name | CAS-No | Weight % |
|----------------------------|-----------|----------|
| Ammonium Nitrate | 6484-52-2 | 0-75 |
| Sodium Nitrate | 7631-99-4 | 0-50 |
| Ethylene glycol, Dinitrate | 628-96-6 | 8-76 |
| Sulphur | 7704-34-9 | 0-4 |
| Nitroglycerin | 55-63-0 | 1-20 |
| Nitrocellulose | 9004-70-0 | 0-6 |

SECTION 4 – FIRST AID MEASURES

General Advice:

In case of accident or if you feel unwell, seek medical advice IMMEDIATELY (show the product label where possible).

Eye Contact:

Immediately flush with plenty of water. After initial flushing, remove any contact lenses and continue flushing for at least 15 minutes. Immediate medical attention is required.

Skin Contact:

Wash off immediately with soap and plenty of water, removing all contaminated clothes and shoes. If skin irritation persists, call a physician.

Inhalation:

Move victim to fresh air. Give artificial respiration ONLY if breathing has stopped. Give cardiopulmonary resuscitation (CPR) if there is no breathing AND no pulse. Obtain medical advice IMMEDIATELY.

Ingestion:

Immediate medical attention is required. Do not induce vomiting. Clean mouth with water and afterwards drink plenty of water. If spontaneous vomiting occurs, have victim lean forward with head positioned to avoid breathing in of vomitus, rinse mouth and administer more water. Never give anything by mouth to and unconscious person.

Notes to physician: Symptomatic. Administer oxygen if there are signs of cyanosis. If clinical condition deteriorates, administer 10cc Methylene Blue intravenously. It is unlikely for this to be required with methemoglobin level of less than 40%.

SECTION 5 – FIRE-FIGHTING MEASURES

Flammable properties: Not itself combustible but assists fire in burning materials. The product does not flash. Explosive power: 337 kJ/100 g.

Suitable extinguishing media: DO NOT FIGHT FIRES INVOLVING EXPLOSIVES. Evacuate surrounding areas to a predetermined safe location no less than 2500 feet (800 meters) in all directions. When controlling fire before involvement of explosives, fire-fighters should wear positive pressure self-containing breathing apparatus (SCBA) and full turnout gear. Water may be applied through fixed extinguishing system (sprinklers) as long as people need not be present for the system to operate.

Unsuitable extinguishing media: DO NOT FIGHT FIRES INVOLVING EXPLOSIVES. Attempts to smother a fire involving this product will be ineffective as it is its own oxygen source. Smother this product could lead to decomposition and explosion. This product is more sensitive to detonation if contaminated with organic or oxidisable material or if heated while confined. Unless the mass of product on fire is flooded with water, re-ignition is possible.

Specific hazards arising from the chemical: This product is a high explosive with mass detonation hazard. DO NOT FIGHT FIRES INVOLVING EXPLOSIVE MATERIALS. Immediately evacuate all personnel from the area to a safe distance. Guard against re-entry. Thermal decomposition can lead to release of irritating gases and vapors.

Protective equipment and precautions for firefighters: As in any fire, wear self-contained breathing apparatus pressure-demand, NIOSH approved (or equivalent) and full protective gear.

SECTION 6 – ACCIDENTAL RELEASE MEASURES

Methods for containment: Contain or absorb leaking putty with sand or earth or other suitable substance.

Methods for cleaning up: Avoid the use of metal tools containing iron and/or copper. Be careful to avoid shock, friction, and contact with grit. Collect product for recovery or disposal. For release to land, contain discharge by constructing dykes or applying inert absorbent; for release to water, utilize damming and/or water diversion to minimize the spread of contamination. Collect contaminated soil and water, and absorbent for proper disposal. Notify applicable government authority if release is reportable or could adversely affect the environment.

SECTION 7 – HANDLING AND STORAGE

Handling: This product is an explosive and should only be used under the supervision of trained personnel. The use of coveralls is recommended. Use good industrial hygiene and housekeeping practices. Keep away from open flames, hot surfaces and sources of ignition.

Storage: Store under moderate temperatures recommended by a technical services representative. Store under dry conditions in a well ventilated magazine that has been approved for either detonator storage or explosive storage. Do NOT store explosives in a detonator magazine or detonators in an explosive magazine. Keep away from heat, spark and flames. 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. Keep away from incompatibles. Ideal storage temperature is 10-27 °C (50-80 °F). Do not expose sealed containers to temperatures above 40 °C (104 °F).

SECTION 8 – EXPOSURE CONTROLS/PERSONAL PROTECTION

| Chemical Name | ACGIH TLV | OSHA PEL | NIOSH IDLH |
|----------------------------|----------------------------|---|------------|
| Sodium Nitrate | 10 mg/cu m (nuisance dust) | NA | |
| Ethylene glycol, Dinitrate | TWA: 0.05 ppm Skin | Ceiling: 0.2 ppm Ceiling: 1 mg/ m ³ Skin | |
| Nitroglycerin | (TWA skin) 0.46 mg/ cu m | Ceiling: 0.2 ppm Ceiling: 2 mg/ m ³ Skin | |

Other exposure guidelines: Ammonium Nitrate: ORICA Guideline 5 mg/m³ (internal TWA)

Engineering Measures: No information available.

Personal Protective Equipment

Eye/Face Protection: Face-shield. Tightly fitting safety goggles.

Skin Protection: User should verify impermeability under normal conditions of use prior to general use. Impervious gloves. Nitrile Rubber.

Respiratory Protection: In case of insufficient ventilation wear suitable respiratory equipment. A NIOSH-approved respirator, if required.

Hygiene Measures: Handle in accordance with good industrial hygiene and safety practice. Recommendations listed in this section indicate the type of equipment, which will provide protection against over exposure to this product. Conditions of use, adequacy of engineering or other control measures, and actual exposures will dictate the need for specific protective devices at your workplace.

SECTION 9 – PHYSICAL AND CHEMICAL PROPERTIES

| | | | |
|----------------------------------|---|---|--------------------------|
| Appearance: | Light pink | Odor: | Characteristic |
| Physical State: | Semi-Solid | Viscosity: | No information available |
| pH: | 7 | Flash Point: | > 100°C |
| Autoignition Temperature: | -222°C (liquid NG) >=100>=212 | Boiling Point/Range: | Not available |
| Melting Point/Range: | Not available | Flammable Limits (Upper): | Not applicable |
| Flammable Limits (Lower): | Not applicable | Explosion Power: | No data available |
| Specific Gravity: | 085- 1.48 g/cc | Water Solubility: | In soluble in water |
| Other Solubility: | Slightly soluble in standard organic solvents | Vapor Pressure: | Not applicable |
| Oxidizing Properties: | Oxidizer | Partition Coefficient (n-octanol/water): | No data available |

SECTION 10 – STABILITY AND REACTIVITY

Stability: Stable under normal conditions. Decomposition Temperature: Ammonium Nitrate will spontaneously decompose at 210°C (410°F). NG explodes at 222°C (431.6°F)

Conditions to avoid: Keep away from open flames, hot surfaces and sources of ignition.

Incompatible materials: Avoid oxidizable materials, metal powder, bronze & copper alloys, fuels (e.g. lubricants, machine oils), fluorocarbon lubricants, acids, corrosive liquids, chlorate, sulphur, sodium nitrite, charcoal, coke and other finely divided combustibles. Strong oxidizing and reducing agents.

Hazardous decomposition products: The following toxic decomposition products may be released. At temperatures above 210°C, decomposition may be explosive, especially if confined. Nitrogen oxides (NOx). Carbon oxide. Hydrocarbons.

Hazardous Polymerization: None under normal processing. Hazardous polymerization does not occur. Explosive material under shock conditions.

SECTION 11 – TOXICOLOGICAL INFORMATION

Acute Toxicity

Product Information: Irritating to eyes. May cause skin irritation. Harmful if swallowed.

| Chemical name | LD50 Oral | LD50 Dermal | LC50 Inhalation |
|----------------------------|------------------------------------|-------------------|-------------------|
| Ammonium Nitrate | 2217 mg/kg Rat | 3000 mg/kg Rabbit | 88.8 mg/L Rat 4 h |
| Sodium Nitrate | 1267-4300 mg/kg Rat | | |
| Ethylene glycol, Dinitrate | 460 mg/ kg Rat 540 mg/ kg Mouse | | |
| Nitroglycerin | 105 mg/ kg Rat 115 mg/ kg Mouse | 280 mg/ kg Rabbit | |
| Nitrocellulose | 5 g/ kg Mouse 5 g/ kg Rat | | |

Subchronic Toxicity (28 Days): Sodium Nitrate; Ammonium Nitrate: Ingestion may cause methemoglobinemia. Initial manifestation of methemoglobinemia is cyanosis, characterized by navy lips, tongue and mucous membranes, with skin color being slate grey. Further manifestation is characterized by headache, weakness, dyspnea, dizziness, stupor, respiratory distress and death due to anoxia. If ingested, nitrates may be reduced to nitrites by bacteria in the digestive tract. Signs and symptoms of nitrite poisoning include methemoglobinemia, nausea, dizziness, increased heart rate, hypotension, fainting and, possibly shock.

Chronic Toxicity: May cause methemoglobinemia.
Carcinogenicity: The ingredients of this product are not classified as carcinogenic by ACGIH (American Conference of Governmental Industrial Hygienists) or IARC (International Agency for Research on Cancer), not regulated as carcinogens by OSHA (Occupational Safety and Health Administration), and not listed as carcinogens by T\NTP (National Toxicology Program).
Mutagenic effects: There is no evidence of mutagenic potential.
Irritation: Irritating to eyes. May cause irritation of respiratory tract. May cause skin irritation in susceptible persons.
Reproductive effects: No information is available and no adverse reproductive effects are anticipated.
Developmental effects: No information is available and no adverse developmental effects are anticipated.
Target Organ: Eyes, skin, respiratory system, blood, liver urinary tract, & gastrointestinal tract (GI).
Other Adverse Effects: Prolonged or repeated exposure to organic nitrates may develop a tolerance due to chronic dilation of the blood vessels. This tolerance disappears rapidly after a few days away from exposure and withdrawal symptoms consisting of angina and heart attack have been reported in chronically exposed workers. Another type of tolerance loss is the "Monday morning disease", where workers experience headaches, dizziness, postural weakness and other symptoms.

SECTION 12 – ECOLOGICAL INFORMATION

Ecotoxicity effects: Harmful to aquatic organisms, may cause long-term adverse effects in the aquatic environment

| Chemical Name | Freshwater Algae Data | Freshwater Fish Species Data | Microtox Data | Water Flea Data | log Pow |
|----------------|-----------------------|------------------------------|---------------|-----------------|---------|
| Sodium Nitrate | | | | | -3.8 |

Persistence/Degradability: Nitroglycerin is water-insoluble and remains explosive.
Mobility in Environmental media: Dissolves slowly in water.

SECTION 13 – DISPOSAL CONSIDERATIONS

Waste Disposal Method: Burn under supervision of an expert at an explosive burning ground or destroy by detonation in boreholes, in accordance with applicable local, provincial and federal regulations. Call upon the services of an Orica Technical Representative.
US EPA Waste Number: No data available on product.

| Chemical Name | RCRA | RCRA- Basis for listing | RCRA- D Series Wastes | RCRA- U Series Wastes |
|------------------------|-------------------|-------------------------|-----------------------|-----------------------|
| Nitroglycerin -55-63-0 | Waste number P081 | | | |

SECTION 14 – TRANSPORT INFORMATION

DOT Proper Shipping Name: Explosive Blasting Type A
Hazard Class: 1.1D
UN-No: UN0081
Packing group: II
TDG Proper Shipping Name: Explosive Blasting Type A
Hazard Class: 1.1D
UN-No: UN0081
Packing group: II

Transportation Emergency Telephone Number: 1-877-561-3636 or CHEMTREC: 1-800-424-9300

SECTION 15 – REGULATORY INFORMATION

CANADIAN CLASSIFICATION: This product has been classified in accordance with the hazard criteria of the CPR (Controlled Products Regulations) and this MSDS contains all the information required by the CPR

WHMIS hazard class: This product is an explosive and is not regulated by WHMIS.
USA CLASSIFICATION:

SARA Regulations Sections 313 and 40 CFR 372: This product contains the following toxic chemical(s) subject to reporting requirements, Ammonium Nitrate (6484-52-2), Sodium Nitrate (7631-99-4), Nitroglycerin (55-63-0), Nitrocellulose (9004-70-0), Sulphur (7704-34-9), & Ethylene Glycol, Dinitrate (628-96-6)

SARA 311/312 Hazardous Categorization

Acute Health Hazard: Yes
Chronic Health Hazard: Yes
Fire Hazard: Yes
Reactive Hazard: Yes
Sudden Release of Pressure Hazard: No

Ozone Protection and 40 CFR 42: No reportable quantities of ozone depleting agents

Other Regulations/Legislations which apply to this product: New Jersey Right-to-Know, Pennsylvania Right-to-Know, Massachusetts Right-to-Know, Rhode Island Right-to-Know, Florida, New Jersey Special Health Hazard Substance List, Minnesota Hazardous Substance List, California Director's List of Hazardous Substances, California Proposition 65.

TSCA: Complies

DSL: Complies

NDSL: Complies

The components in the product are on the following international inventory lists:

| Chemical Name | TSCA | DSL | NDSL | ENCS | EINECS | ELINCS | CHINA | KECL | PICCS | AICS |
|----------------------------|------|-----|------|------|--------|--------|-------|------|-------|------|
| Ammonium Nitrate | X | X | - | X | X | - | X | X | X | X |
| Sodium Nitrate | X | X | - | X | X | X | X | X | X | X |
| Ethylene Glycol, Dinitrate | X | X | - | - | X | - | - | X | - | X |
| Sulphur | X | X | - | X | X | X | X | X | X | X |
| Nitroglycerin | X | X | - | X | X | - | - | X | X | X |
| Nitrocellulose | X | X | - | X | - | - | X | X | X | X |

Legend: X – Listed

SECTION 16 – OTHER INFORMATION

Prepared by: Safety Health & Environment
303-268-5000

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End of MSDS