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**MATERIAL SAFETY DATA SHEET**

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**Pro38 & Pro54 Rocket Motor Reload Kits  
(Classic & White Thunder Propellants)**

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**1.0 PRODUCT / COMPANY IDENTIFICATION**

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**Product Name:** Pro38 & Pro54 Rocket Motor Reload Kits  
**Synonyms:** Rocket Motor  
**Proper Shipping Name:** Articles, Explosive, N.O.S. (Model Rocket Motors)  
**Part Numbers:** P38R-A-1G, P38R-A-2G, P38R-A-3G,  
P38R-A-4G, P38R-A-5G, P38R-A-6G,  
P54R-A-1G, P54R-A-2G, P54R-A-3G,  
P54R-A-4G, P54R-A-5G, P54R-A-6G  
**Product Use:** Solid fuel motor for propelling hobby rockets  
**Manufacturer:** Cesaroni Technology Inc.  
P.O. Box 246  
2561 Stouffville Rd.  
Gormley, Ont.  
Canada L0H 1G0  
**Telephone Numbers:**  
**Product Information:** 1-905-887-2370  
**24 Hour Emergency Telephone Number:** 1-613-996-6666 (CANUTEC)

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**2.0 COMPOSITION / INFORMATION ON INGREDIENTS**

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**Classic & White Thunder Propellants**

Ingredient Name	CAS Number	Percentage
Ammonium Perchlorate.....	7790-98-9	65-80 %
Aluminum or Magnesium.....		0-15 %
Iron Oxide.....		0-2%
Synthetic Rubber.....		10-30 %

**Black Powder**

Ingredient Name	CAS Number	Percentage
Potassium Nitrate.....	7757-79-1	70-76 %
Charcoal.....	n/a	8-18 %
Sulphur.....	7704-34-9	9-20 %
Graphite.....	7782-42-5	trace

Note: Product composition ranges shown are typical values for health, safety and environmental use and are not intended as specifications.

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**3.0 HAZARDS IDENTIFICATION**

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**Emergency Overview:**

There articles contain cylinders of ammonium perchlorate composite propellant, encased in inert plastic parts. The forward closure also contains a few grams of black powder. Pro38 and Pro54 Rocket motor reload kits are classified as explosives, and may cause serious injury, including death if used improperly. All explosives are dangerous and must be handled carefully and used following approved safety procedures under the direction of competent, experienced personnel in accordance with all applicable federal, state and local laws and regulations.

**General Appearance:**

Cardboard tubes contain various plastic parts. Inside the plastic tube are cylinders of composite propellant (rocket fuel). The forward closure also contains a small quantity of black powder. All parts are odourless solids.

**Potential Health Effects:**

**Eye:**

Not a likely route of exposure. May cause eye irritation.

**Skin:**

Not a likely route of exposure. Low hazard for usual industrial/hobby handling.

**Ingestion:**

Not a likely route of exposure.

**Inhalation:**

Not a likely route of exposure. May cause respiratory tract irritation.

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**4.0 FIRST AID MEASURES**

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**Eyes:**

Immediately flush eyes with plenty of water for at least 15 minutes, occasionally lifting the upper and lower eyelids. Get medical aid.

**Skin:**

Flush skin with plenty of soap and water for at least 15 minutes while removing contaminated clothing and shoes. Get medical aid if irritation develops or persists.

**Ingestion:**

Do NOT induce vomiting. If conscious and alert, rinse mouth and drink 2-4 cupfuls of milk or water.

**Inhalation:**

Remove from exposure to fresh air immediately. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical aid.

**Burns:** Burns can be treated as per normal first aid procedures.

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**5.0 FIRE FIGHTING MEASURES**

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**Extinguishing Media:**

In case of fire, use water, dry chemical, chemical foam, or alcohol-resistant foam to contain surrounding fire.

**Exposure Hazards During Fire:**

Exposure to extreme heat may cause ignition.

**Combustion Products from Fire:**

During a fire, irritating and highly toxic gases may be generated by thermal decomposition or combustion.

**Fire Fighting Procedures:**

Keep all persons and hazardous materials away. Allow material to burn itself out. As in any fire, wear a self-contained breathing apparatus in pressure-demand, MSHA/NIOSH (approved or equivalent), and full protective gear.

**Special Instructions / Notes:**

These articles burn rapidly and generate a significant flame for a short period of time. Black powder is a deflagrating explosive. It is very sensitive to flame and spark and can also be ignited by friction and impact. When ignited unconfined, it burns with explosive violence and will explode if ignited under even slight confinement.

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**6.0 ACCIDENTAL RELEASE MEASURES**

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**Safeguards (Personnel):**

**Spills:** Clean up spills immediately. Replace articles in packaging and boxes and seal securely. Sweep or scoop up using non-sparking tools.

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**7.0 HANDLING AND STORAGE**

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**Handling:**

Keep away from heat, sparks and flame. Avoid contamination. Do not get in eyes, on skin or on clothing. Do not taste or swallow. Avoid prolonged or repeated contact with skin. Follow manufacturer's instructions for use.

**Storage:**

Store in a cool, dry place away from sources of heat, spark or flame. Keep in shipping packaging when not in use.

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## 8.0 EXPOSURE CONTROLS / PERSONAL PROTECTION

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### Engineering Controls:

Use adequate explosion proof ventilation to keep airborne concentrations low. All equipment and working surfaces must be grounded.

### Personal Protective Equipment:

#### Eyes:

Wear appropriate protective eyeglasses or chemical safety goggles as described by OSHA's eye and face protection regulations in 29 CFR 1910.133 or European Standard EN166.

#### Skin:

Wear appropriate gloves to prevent skin exposure if handling pellets.

#### Clothing:

Wear appropriate protective clothing to prevent skin exposure if handling pellets. Clothing should be appropriate for handling pyrotechnic substances.

#### Respirators:

A respirator is not typically necessary. Follow the OSHA respirator regulations found in 29CFR1910.134 or European Standard EN 149. Always use a NIOSH or European Standard EN 149 approved respirator when necessary.

## 9.0 PHYSICAL AND CHEMICAL PROPERTIES

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Physical State:	solid
Appearance:	rubber cylinders inside plastic parts
Odour:	none
Odour Threshold:	Not available.
pH:	Not available.
Vapour Pressure:	Not available.
Vapour Density:	Not available.
Viscosity:	Not available.
Evaporation Rate:	Not available.
Boiling Point:	Not available.
Freezing/Melting Point:	Not available.
Coefficient of water/oil distribution:	Not available.
Autoignition Temperature:	280°C
Flash Point:	Not available.
Explosion Limits, lower (LEL):	Not available.
Explosion Limits, upper (UEL):	Not available.
Sensitivity to Mechanical Impact:	unprotected black powder can be ignited by impact
Sensitivity to Static Discharge:	unprotected black powder can be ignited by static discharge
Decomposition Temperature:	> 400°C
Solubility in water:	black powder is soluble in water
Specific Gravity/Density:	black powder = 1.7-2.1 Propellant = 1.35-2.25
Molecular Formula:	Not applicable
Molecular Weight:	Not applicable.

## 10.0 STABILITY AND REACTIVITY

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### Chemical Stability:

Stable under normal temperatures and pressures.

### Conditions to Avoid:

Heat, static electricity, friction, impact

### Incompatibilities with Other Materials:

Combustible or flammable materials, explosive materials

### Hazardous Products Of Decomposition:

Oxides of nitrogen

### Hazardous Polymerization:

Will not occur.

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### 11.0 TOXICOLOGICAL INFORMATION

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**Routes of Entry:** Skin contact – not likely  
Skin absorption – not likely  
Eye contact – not likely  
Inhalation – not likely  
Ingestion – not likely

**Effects of Acute Exposure to Product:**  
No data available

**Effects of Chronic Exposure to Product:**  
No data available

**Exposure Limits:**

Black Powder Pellets

Ingredient Name	CAS Number	OSHA PEL	ACGIH TLV
Potassium Nitrate	7757-79-1	not established	not established
Charcoal	n/a	not established	not established
Sulphur	7704-34-9	not established	not established
Graphite	7782-42-5	2.5 mg/m <sup>3</sup>	15 mmpt (TWA)

Classic & White Thunder Propellant

Ingredient Name	CAS Number	OSHA PEL	ACGIH TLV
Ammonium Perchlorate	7790-98-9	not established	not established
Al, Mg or Al/Mg Alloy		15 mg/m <sup>3</sup>	10 mg/m <sup>3</sup> (TWA)
Iron Oxide		10 mg/m <sup>3</sup>	5 mg/m <sup>3</sup> (TWA)
Synthetic Rubber		not established	not established

**Irritancy of the Product:**

No data available

**Sensitization to the Product:**

No data available

**Carcinogenicity:**

Not listed by ACGIH, IARC, NIOSH, NTP, or OSHA

**Reproductive Toxicity:**

No data available

**Teratogenicity:**

No data available

**Mutagenicity:**

No data available

**Toxically Synergistic Products:**

No data available

**LD50:**

No data available

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### 12.0 ECOLOGICAL INFORMATION

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**Environmental Data:**

**Ecotoxicity Data:**

Not determined.

**EcoFaTE Data:**

Not determined.

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### 13.0 DISPOSAL CONSIDERATIONS

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**Product As Sold:**

Pack firmly in hole in ground with nozzle pointing up. Ignite motor electrically from a safe distance and wait 5 minutes before approaching. Dispose of spent components in inert trash.

**Product Packaging:**

Dispose of used packaging materials in inert trash.

**Special Considerations:**

Consult local regulations about disposal of explosive materials.

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## 14.0 TRANSPORT INFORMATION

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### Shipping Information – Canada

**TDG Classification:** Class 1.4 Explosive  
**Proper Shipping Name:** Articles, Explosive, N.O.S. (Model Rocket Motors)  
**UN Number:** 0351  
**UN Classification Code:** 1.4 C  
**Packing Group:** I  
**UN Packing Instruction:** 101

### Shipping Information - USA / IMO

**Proper Shipping Name:** Articles, Explosive, N.O.S. (Model Rocket Motors)  
**UN Number:** 0351  
**UN Classification Code:** 1.4 C  
**US DOT Classification Reference Number:** Pro38 - EX0011098  
Pro54 – EX2003010015  
**DOT / IMO Label:** Class 1 – Explosive – Division 1.4C

### Shipping Information - IATA

**Proper Shipping Name:** Articles, Explosive, N.O.S. (Model Rocket Motors)  
**UN Number:** 0351  
**UN Classification Code:** 1.4 C  
**IATA Labels:** Class 1 – Explosive – Division 1.4C  
Cargo Aircraft Only

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## 15.0 REGULATORY INFORMATION

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### Canada

This product has been classified according to the hazard criteria of the Canadian Controlled Products Regulations (CPR) and the MSDS contains all of the information required by the CPR.

WHMIS Classification: Not Controlled (explosive)

#### Domestic Substance List (DSL) Status:

CAS# 7704-34-9 (S) is listed on Canada's DSL List.  
CAS# 7757-79-1(KNO<sub>3</sub>) is listed on Canada's DSL List.  
CAS# 7790-98-9 is listed on Canada's DSL List.  
CAS# 7782-42-5 is listed on Canada's DSL List.

#### Ingredient Disclosure List Status:

CAS# 7704-34-9 (S) is not listed on Canada's Ingredient Disclosure List.  
CAS# 7757-79-1(KNO<sub>3</sub>) is not listed on Canada's Ingredient Disclosure List.  
CAS# 7790-98-9 is not listed on Canada's Ingredient Disclosure List.  
CAS# 7782-42-5 is not listed on Canada's Ingredient Disclosure List.

Canadian Explosives Classification: Class 7.2.5

This product is an authorized explosive in Canada.

Pro38 - File # XP 2050-C50 99101501  
Pro54 - File # XP 2050-C50 02112001

These products are not considered "Controlled Good" in Canada under the Controlled Goods Regulations.

### United States of America

#### TSCA Inventory Status:

CAS# 7704-34-9 (S) is listed on the TSCA inventory.  
CAS# 7757-79-1(KNO<sub>3</sub>) is listed on the TSCA inventory

#### Hazardous Chemical Lists

CERCLA Hazardous Substance (40 CFR 302.4)	Nb
SARA Extremely Hazardous Substance (40CFR 355)	Nb
SARA Toxic Chemical (40CFR 372.65)	Nb

## European/International Regulations

The product on this MSDS, or all its components, is included on the following countries' chemical inventories:  
EINECS – European Inventory of Existing Commercial Chemical Substances

European Labelling in Accordance with EC Directives

Hazard Symbols: Explosive.

Risk Phrases:

**R 2** Risk of explosion by shock, friction, fire or other sources of ignition.

**R 11** Highly flammable

**R 44** Risk of explosion if heated under confinement.

Safety Phrases:

**S 1/2** Keep locked up and out of the reach of children.

**S 8** Keep container dry.

**S 15** Keep away from heat.

**S 16** Keep away from sources of ignition – No smoking.

**S 17** Keep away from combustible material.

**S 18** Handle and open container with care.

**S 33** Take precautionary measures against static discharges.

**S 41** In case of fire and/or explosion do not breathe fumes.

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## 16.0 OTHER INFORMATION

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MSDS Prepared by: Regulatory Affairs Department  
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[www.Pro38.com](http://www.Pro38.com)

The data in this Material Safety Data Sheet relates only to the specific material or product designated herein and does not relate to use in combination with any other material or in any process.

The information above is believed to be accurate and represents the best information currently available to us. However, we make no warranty of merchantability or any other warranty, express or implied, with respect to such information, and we assume no liability resulting from its use. Users should make their own investigations to determine the suitability of the information for their particular purposes. In no way shall the company be liable for any claims, losses, or damages of any third party or for lost profits or any special, indirect, incidental, consequential or exemplary damages, howsoever arising, even if the company has been advised of the possibility of such damages.