



**Quest Aerospace Division, RCS Rocket Motor Components, Inc.**

## **Safety Data Sheet**

(revised 7/20/16)

Prepared in accordance with 29 CFR § 1910.1200 (g)

### **Section 1. Identification**

**Product identifier:** Quest-branded model rocket motor.

**Manufacturer:** RCS Rocket Motor Components, Inc., 2113 W 850 N, Cedar City, UT 84721, 435-865-7100, emergency response number: Infotrac (352) 323-3500

**Recommended use:** Propulsion for hobby rockets.

### **Section 2. Hazard Identification**

**Hazard classification:** Explosive 1.4S (under 30 grams per motor).

**Signal word:** Flammable.

**Hazard statement:** Caution: Rocket motors are flammable, rocket motors may become propulsive in a fire.

**Pictograms:** 

**Precautionary Statement:** Do not smoke near rocket motors and keep away from open flames and other heat sources.

**Description of any hazards not otherwise classified:** N/A

**Unknown toxicity statement:** N/A

### **Section 3. Composition/Information on Ingredients**

**Chemical name:** Contains an energetic composition commonly known as Black Power or Ammonium Perchlorate Composite Propellant (APCP).

**Common name and synonyms:** Model rocket motor, hobby rocket motor.

**Chemical Abstracts Service (CAS) number or other unique identifiers:** N/A

**Impurities and stabilizing additives:** N/A

**The chemical name and concentration of all ingredients:** Products contain varying quantities of Black Powder (Potassium Nitrate, Charcoal and Sulfur) or a combination of Ammonium Perchlorate, synthetic rubber and lesser amounts of proprietary ingredients such as burn rate modifiers and a powdered metal fuel.

**Trade secret statement:** The specific chemical identity and/or exact percentage (concentration) of composition of some ingredients has been withheld as a trade secret.

#### **Section 4. First Aid Measures**

**Necessary first-aid instructions:** If ingested, induce vomiting and call a physician. If combustion products are inhaled, move to fresh air and call a physician if ill effects are noted. For mild burns use a first aid burn ointment. For severe burns immerse the burned area in cold water at once and see a physician immediately.

**Description of the most important symptoms or effects, and any symptoms that are acute or delayed:** Coughing, tightness of chest in the case of inhalation, redness, blistering or charring of skin in the case of burns, upset stomach, vomiting, or diarrhea in the case of ingestion.

**Recommendations for immediate medical care and special treatment needed, when necessary:** If ingested, induce vomiting and call a physician. If combustion products are inhaled, move to fresh air and call a physician if ill effects are noted. For mild burns use a first aid burn ointment. For severe burns immerse the burned area in cold water at once and see a physician immediately.

#### **Section 5. Fire-Fighting Measures**

**Recommendations of suitable extinguishing equipment, and information about extinguishing equipment that is not appropriate for a particular situation:** Use water when fighting any pyrotechnic fire, foam and CO<sub>2</sub> are ineffective.

**Advice on specific hazards that develop from the chemical during the fire, such as any hazardous combustion products created when the chemical burns:** Rocket motor propellant may produce Hydrogen Chloride and Carbon Monoxide gas and other toxic compounds when burned. Rocket motors may become propulsive in a fire.

**Recommendations on special protective equipment or precautions for firefighters:** Full-face respirators recommended to prevent from inhaling toxic combustion byproducts.

## **Section 6. Accidental Release Measures**

**Personal precautions and protective equipment:** N/A

**Emergency procedures, including instructions for evacuations, consulting experts when needed, and appropriate protective clothing:** N/A

**Cleanup procedures:** Put motors back into shipping bags.

## **Section 7. Handling and Storage**

**Precautions for safe handling:** Keep away from flames and other sources of heat. Do not smoke within 25 feet of product. Do not ingest. Do not breathe exhaust fumes. Keep in original packaging until ready for use.

**Recommendations on the conditions for safe storage, including any incompatibilities:** Store in a dry location, away from open flames and other heat sources.

## **Section 8. Exposure Controls/Personal Protection**

**OSHA Permissible Exposure Limits (PELs), American Conference of Governmental Industrial Hygienists (ACGIH) Threshold Limit Values (TLVs):** N/A

**Appropriate engineering controls:** Do not use rocket motors indoors.

**Recommendations for personal protective measures to prevent illness or injury from exposure to chemicals:** Do not use rocket motors indoors. Do not breathe exhaust fumes.

**Any special requirements for PPE, protective clothing or respirators:** N/A

## **Section 9. Physical and Chemical Properties**

**Appearance:** Plastic bags or packages containing cylindrical rocket motors.

**Upper/lower flammability or explosive limits:** Propellant composition ignites at 540 deg. F.

**Odor:** Slight.

**Vapor pressure:** N/A

**Odor threshold:** N/A

**Vapor density:** N/A

**pH:** N/A

**Relative density:** N/A

**Melting point/freezing point:** N/A

**Solubility(ies):** N/A

**Initial boiling point and boiling range:** N/A

**Flash point:** N/A

**Evaporation rate:** N/A

**Flammability:** Flammable.

**Upper/lower flammability or explosive limits:** N/A

**Vapor pressure:** N/A

**Vapor density:** N/A

**Relative density:** N/A

**Solubility(ies):** N/A

**Partition coefficient: n-octanol/water:** N/A

**Auto-ignition temperature:** 540 deg. F.

**Decomposition temperature:** 540 deg. F.

**Viscosity:** N/A

## **Section 10. Stability and Reactivity**

### **Reactivity.**

**Description of the specific test data for the chemical(s):** All available test data indicates that the product is stable at normal temperatures.

### **Chemical stability.**

**Indication of whether the chemical is stable or unstable under normal ambient temperature and conditions while in**

**storage and being handled:** Product is stable at normal temperatures.

**Other.**

**Indication of the possibility of hazardous reactions, including a statement whether the chemical will react or polymerize, which could release excess pressure or heat, or create other hazardous conditions. Also, a description of the conditions under which hazardous reactions may occur:** Product autoignites at 540 deg. F.

**List of all conditions that should be avoided:** Open flames, smoking near product, other heat sources.

**List of all classes of incompatible materials:** N/A.

**List of any known or anticipated hazardous decomposition products that could be produced because of use, storage, or heating:** Oxides of carbon, Hydrogen Chloride, other toxic gases, metal oxide fumes.

**Section 11. Toxicological Information**

**Information on the likely routes of exposure:** Inhalation, ingestion.

**Description of the delayed, immediate, or chronic effects from short- and long-term exposure:** Propellant may be an irritant in the case of skin and eye contact, may be hazardous in the case of ingestion. Inhalation of large amounts of combustion products may produce similar but lesser symptoms as ingestion.

**The numerical measures of toxicity:** N/A

**Description of the symptoms:** Coughing, tightness of chest in the case of inhalation, redness, blistering or charring of skin in the case of burns, upset stomach, vomiting, or diarrhea in the case of ingestion.

**Indication of whether the chemical is listed in the National Toxicology Program (NTP) Report on Carcinogens (latest edition) or has been found to be a potential carcinogen in the International Agency for Research on Cancer (IARC)**

**Monographs (latest editions) or found to be a potential carcinogen by OSHA:** N/A

## **Section 12. Ecological Information**

**Data from toxicity tests performed on aquatic and/or terrestrial organisms:** N/A

**Potential for the chemical to persist and degrade in the environment either through biodegradation or other processes:** Unknown.

**Results of tests of bioaccumulation potential:** N/A

**The potential for a substance to move from the soil to the groundwater:** Unknown.

**Other adverse effects:** There are concerns that Ammonium Perchlorate has the potential for thyroid problems in certain individuals.

## **Section 13. Disposal Considerations**

**Description of appropriate disposal containers to use:** None. Rocket motors should be disposed of by burning.

**Recommendations of appropriate disposal methods to employ:** Bury rocket motor in hole in ground with only the nozzle exposed, away from people, buildings, animals and flammable materials. Ignite motor electrically from a safe distance. Propellant and other pyrotechnic materials will burn until consumed. After the motor has cooled down, dispose of spent rocket motor in an inert trash receptacle.

**Description of the physical and chemical properties that may affect disposal activities:** None anticipated.

**Language discouraging sewage disposal:** Do not dispose rocket motors in a sewer system.

**Any special precautions for landfills or incineration activities:** Do not dispose of rocket motors in landfills. Dispose by burning as described above.

## **Section 14. Transport Information**

**UN number:** 0432.

**UN proper shipping name:** Articles Pyrotechnic.

**NA number:** 0323

**NA proper shipping name:** Model Rocket Motor

**Transport hazard class(es):** Hazard class 1 or 4 depending on whether special permit DOT-SP 7887 is used.

**Packing group number:** II.

**Environmental hazards:** None.

**Guidance on transport in bulk:** None

**Special precautions:** None.

## **Section 15. Regulatory Information**

**Any national and/or regional regulatory information of the chemical or mixtures:** Consult Federal Aviation Administration (FAA) regulations before flying rockets using Quest rocket motors.

## **Section 16. Other Information**

**Date of preparation and last revision:** July 20, 2016

### **CALIFORNIA USE ONLY**

Perchlorate Material – special handling may apply. See:

[www.dtsc.ca.gov/hazardouswaste/perchlorate](http://www.dtsc.ca.gov/hazardouswaste/perchlorate)