

# Safety Data Sheet

Acc. to OSHA HCS (29 CFR 1910.1200)


Printing date: October 16, 2018

Revision: October 16, 2018

## 1 Identification

- **Product identifier**
- **Trade name:** **Estes Model Rocket Engines / Motors (≤ 30g propellant)**
- **Other means of identification:** No other identifiers
- **Recommended use and restriction on use**
- **Recommended use:** Model Rocketry - Pyrotechnic article to propel a recoverable aeromodel.
- **Restrictions on use:** No relevant information available.
- **Details of the supplier of the Safety Data Sheet**
- **Manufacturer/Supplier:**  
Estes Industries, LLC  
1295 H Street  
Penrose, CO 81240  
USA  
(719) 372-6565
- **Emergency telephone number:**  
ChemTel Inc.  
(800)255-3924 (North America)  
+1 (813)248-0585 (International)

## 2 Hazard(s) identification

- **Classification of the substance or mixture**  
Expl. 1.4 H204 Fire or projection hazard.
- **Label elements**  
This product is a consumer product and is labeled in accordance with the US Consumer Product Safety Commission. GHS labelling is not required per 29CFR1910.1200(b)(5)(v). The labeling below applies to industrial/professional products.
- **GHS label elements**
- **Hazard pictograms:**  
  
GHS01
- **Signal word:** Warning
- **Hazard statements:**  
H204 Fire or projection hazard.
- **Precautionary statements:**  
P210 Keep away from heat/sparks/open flames/hot surfaces. - No smoking.  
P370+P380 In case of fire: Evacuate area.  
P373 DO NOT fight fire when fire reaches explosives.  
P374 Fight fire with normal precautions from a reasonable distance.  
P401 Store in accordance with local/regional/national/international regulations.  
P501 Dispose of contents/container in accordance with local/regional/national/international regulations.
- **Other hazards** There are no other hazards not otherwise classified that have been identified.

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### 3 Composition/information on ingredients

· **Chemical characterization: Mixtures**

· **Components:**

|            |                   |   |        |
|------------|-------------------|---|--------|
| 7757-79-1  | Potassium nitrate |  Ox. Sol. 2, H272    | 60-80% |
| 7704-34-9  | Sulfur            |  Skin Irrit. 2, H315 | 10-20% |
| 16291-96-6 | charcoal          |  Flam. Sol. 1, H228  | 10-20% |

· **Additional information:** For the wording of the listed Hazard Statements, refer to section 16.

### 4 First-aid measures

· **Description of first aid measures**

· **After inhalation:** Supply fresh air; consult doctor in case of complaints.

· **After skin contact:**

In case of minor burns, flush with cool water.  
Seek immediate help for blistering or open wounds.

· **After eye contact:**

Unlikely route of exposure.  
Seek medical treatment in case of complaints.

· **After swallowing:**

Unlikely route of exposure.  
Rinse out mouth and then drink plenty of water.  
Do not induce vomiting; immediately call for medical help.

· **Most important symptoms and effects, both acute and delayed:**

Adverse health effects are not reasonably expected from normal use of product.

· **Indication of any immediate medical attention and special treatment needed:** Treat symptomatically.

### 5 Fire-fighting measures

· **Extinguishing media**

· **Suitable extinguishing agents:**

Water in flooding quantities.  
Fight fire with normal precautions from a reasonable distance.

· **For safety reasons unsuitable extinguishing agents:** None.

· **Special hazards arising from the substance or mixture**

Formation of toxic gases is possible during heating or in case of fire.

· **Advice for firefighters**

· **Protective equipment:**

Wear self-contained respiratory protective device.  
Wear fully protective suit.

· **Additional information:**

Eliminate all ignition sources if safe to do so.  
Cool endangered receptacles with water in flooding quantities.

### 6 Accidental release measures

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- **Personal precautions, protective equipment and emergency procedures**  
Keep away from ignition sources.
- **Environmental precautions** Avoid release to the environment.
- **Methods and material for containment and cleaning up**  
Pick up manually.  
Send for recovery or disposal in suitable receptacles.
- **Reference to other sections**  
See Section 7 for information on safe handling.  
See Section 8 for information on personal protection equipment.  
See Section 13 for disposal information.

## 7 Handling and storage

- **Handling**
- **Precautions for safe handling:**  
Keep out of reach of small children.  
Handle with care.  
Keep ignition sources away.
- **Conditions for safe storage, including any incompatibilities**
- **Requirements to be met by storerooms and receptacles:**  
Avoid storage near extreme heat, ignition sources or open flame.  
Storage area should be dry and well-ventilated.  
Protect from humidity and water.  
Store at 32-140 °F / 0-60 °C.
- **Specific end use(s)** No relevant information available.

## 8 Exposure controls/personal protection

- **Control parameters**
- **Components with limit values that require monitoring at the workplace:**  
The product does not contain any relevant quantities of materials with critical values that have to be monitored at the workplace.
- **Exposure controls**
- **General protective and hygienic measures:**  
The usual precautionary measures for handling chemicals should be followed.  
Information is only applicable to product contents, and not to product as normally supplied. This information is applicable to damaged, leaking, or spilled product as contact with contents is possible under these conditions.
- **Engineering controls:** Do not subject to grinding/shock/friction.
- **Breathing equipment:** Not required under normal conditions of use.
- **Protection of hands:** Gloves not required under normal conditions of use.
- **Eye protection:** Not required under normal conditions of use.
- **Body protection:** Not required under normal conditions of use.
- **Limitation and supervision of exposure into the environment**  
No relevant information available.
- **Risk management measures** No relevant information available.

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### 9 Physical and chemical properties

· **Information on basic physical and chemical properties**

· **Appearance:**

**Form:** Kraft colored paper cylinders with grey nozzle at one end.

**Color:** Light grey

· **Odor:** Sulphurous

· **Odor threshold:** Not determined.

· **pH-value:** Not applicable.

· **Melting point/Melting range:** Not determined.

· **Boiling point/Boiling range:** Not determined.

· **Flash point:** Not applicable.

· **Flammability (solid, gaseous):** Fire or projection hazard.

· **Auto-ignition temperature:** 282 °C (539.6 °F)

· **Decomposition temperature:** Not determined.

· **Danger of explosion:** Not determined.

· **Explosion limits**

**Lower:** Not determined.

**Upper:** Not determined.

· **Oxidizing properties:** Contains oxidizing agent.

· **Vapor pressure:** Not applicable.

· **Density:**

**Relative density:** Not determined.

**Vapor density:** Not applicable.

**Evaporation rate:** Not applicable.

· **Solubility in / Miscibility with**

**Water:** Partly soluble.

· **Partition coefficient (n-octanol/water):** Not determined.

· **Viscosity**

**Dynamic:** Not applicable.

**Kinematic:** Not applicable.

· **Other information** No relevant information available.

### 10 Stability and reactivity

· **Reactivity:** The product is non-reactive under normal conditions of use, storage and transport.

· **Chemical stability:**

· **Thermal decomposition / conditions to be avoided:**

No decomposition if used and stored according to specifications.

Avoid temperatures above 140 °F / 60 °C.

· **Possibility of hazardous reactions**

Reacts with acids.

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Flammable.

**· Conditions to avoid**

Excessive heat.

Sources of ignition: sparks, open flame, incompatible materials

**· Incompatible materials** Strong acids**· Hazardous decomposition products**

Carbon monoxide and carbon dioxide

Nitrogen oxides

Sulfur oxides (SO<sub>x</sub>)

## 11 Toxicological information

**· Information on toxicological effects****· Acute toxicity:** Based on available data, the classification criteria are not met.**· LD/LC50 values that are relevant for classification:** None.**· Primary irritant effect:****· On the skin:** Based on available data, the classification criteria are not met.**· On the eye:** Based on available data, the classification criteria are not met.**· Sensitization:** Based on available data, the classification criteria are not met.**· Carcinogenic categories****· IARC (International Agency for Research on Cancer):**

None of the ingredients are listed.

**· NTP (National Toxicology Program):**

None of the ingredients are listed.

**· OSHA-Ca (Occupational Safety & Health Administration):**

None of the ingredients are listed.

**· Probable route(s) of exposure:** Skin contact.**· Germ cell mutagenicity:** Based on available data, the classification criteria are not met.**· Carcinogenicity:** Based on available data, the classification criteria are not met.**· Reproductive toxicity:** Based on available data, the classification criteria are not met.**· STOT-single exposure:** Based on available data, the classification criteria are not met.**· STOT-repeated exposure:** Based on available data, the classification criteria are not met.**· Aspiration hazard:** Based on available data, the classification criteria are not met.

## 12 Ecological information

**· Toxicity****· Aquatic toxicity** No relevant information available.**· Persistence and degradability** No relevant information available.**· Bioaccumulative potential:** No relevant information available.**· Mobility in soil:** No relevant information available.**· Additional ecological information****· General notes:**

This statement was deduced from the properties of the single components.

Due to available data on eliminability/decomposition and bioaccumulation potential, a prolonged damage

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of the environment is unlikely.  
 · **Other adverse effects** No relevant information available.

## 13 Disposal considerations

- **Waste treatment methods**
- **Recommendation:**

To dispose of a small quantity of product, soak in water for at least 24 hours, then dispose of remnants in an ordinary manner. For large quantities, contact manufacturer or incinerate.  
 The user of this material has the responsibility to dispose of unused material, residues and containers in compliance with all relevant local, state and federal laws and regulations regarding treatment, storage and disposal for hazardous and nonhazardous wastes.

## 14 Transport information

- **UN-Number**

UN1325 (DOT SP-7887) or NA0323  
 UN0432

- **UN proper shipping name**
- **DOT**

Flammable Solid, Organic n.o.s. (Model rocket kits containing motors with or without un-installed igniters)  
 or  
 Model rocket motor  
 ADR, IMDG  
 ARTICLES, PYROTECHNIC  
 IATA  
 Articles, pyrotechnic

- **Transport hazard class(es)**
- **DOT**



- **Class**
- **Label**

4.1 or 1.4S  
 4.1 or 1.4S

- **ADR, IMDG, IATA**



- **Class**
- **Label**

1.4S  
 1.4S

- **Packing group**

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|   |                  |
|---|------------------|
| · DOT   | II               |
| · ADR, IMDG, IATA   | no packing group |
| · Environmental hazards   |                  |
| · Marine pollutant:   | No               |
| · Special precautions for user  | Not applicable.  |
| · EMS Number:   | F-A,S-Q          |
| · Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code | Not applicable.  |

## 15 Regulatory information

- Safety, health and environmental regulations/legislation specific for the substance or mixture
- United States (USA)
- SARA

· **Section 302 (extremely hazardous substances):**

None of the ingredients are listed.

· **Section 355 (extremely hazardous substances):**

None of the ingredients are listed.

· **Section 313 (Specific toxic chemical listings):**

7757-79-1 | Potassium nitrate

· **TSCA (Toxic Substances Control Act)**

All ingredients are listed.

· **Proposition 65 (California)**

· **Chemicals known to cause cancer:**

Clay nozzles and caps contain a small amount of silica.

· **Chemicals known to cause developmental toxicity for females:**

None of the ingredients are listed.

· **Chemicals known to cause developmental toxicity for males:**

None of the ingredients are listed.

· **Chemicals known to cause developmental toxicity:**

None of the ingredients are listed.

· **EPA (Environmental Protection Agency):**

None of the ingredients are listed.

· **IARC (International Agency for Research on Cancer):**

None of the ingredients are listed.

## 16 Other information

Model rocketry is regulated in most states in accordance with NFPA 1122, Code for Model Rocketry.

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· **Date of preparation / last revision** October 16, 2018 / -

· **Abbreviations and acronyms:**

ADR: European Agreement concerning the International Carriage of Dangerous Goods by Road

IMDG: International Maritime Code for Dangerous Goods

DOT: US Department of Transportation

IATA: International Air Transport Association

CAS: Chemical Abstracts Service (division of the American Chemical Society)

LC50: Lethal concentration, 50 percent

LD50: Lethal dose, 50 percent

OSHA: Occupational Safety & Health Administration

TLV: Threshold Limit Value

PEL: Permissible Exposure Limit

REL: Recommended Exposure Limit

Expl. 1.4: Explosives – Division 1.4

Flam. Sol. 1: Flammable solids – Category 1

Ox. Sol. 2: Oxidizing solids – Category 2

Skin Irrit. 2: Skin corrosion/irritation – Category 2

· **Sources**

Website, European Chemicals Agency ([echa.europa.eu](http://echa.europa.eu))

Website, US EPA Substance Registry Services ([ofmpub.epa.gov/sorinternet/registry/substreg/home/overview/home.do](http://ofmpub.epa.gov/sorinternet/registry/substreg/home/overview/home.do))

Website, Chemical Abstracts Registry, American Chemical Society ([www.cas.org](http://www.cas.org))

Patty's Industrial Hygiene, 6th ed., Rose, Vernon, ed. ISBN: 978-0-470-07488-6

Casarett and Doull's Toxicology: The Basic Science of Poisons, 8th Ed., Klaasen, Curtis D., ed., ISBN: 978-0-07-176923-5.

Safety Data Sheets, Individual Manufacturers

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