

Safety Data Sheet

according to 1907/2008/EC (REACH), 1272/2008/EC (CLP), and OSHA GHS

Printing date 23.10.2014

Revision: 23.10.2014

SECTION 1: Identification of the substance/mixture and of the company/undertaking

- 1.1 Product identifier
- Trade name: Estes Model Rocket Engines / Motors (≤ 30g propellant)
- 1.2 Relevant identified uses of the substance or mixture and uses advised against
Pyrotechnic article to propel a recoverable aeromodel.
- Application of the substance / the mixture Model Rocketry
- 1.3 Details of the supplier of the Safety Data Sheet
- Manufacturer/Supplier:
Estes-Cox Corp. d/b/a Estes Industries
1295 H Street, P.O. Box 227
Penrose, CO 81240 USA
Tel (719) 372-8565
- 1.4 Emergency telephone number:
ChemTel Inc.
(800)255-3924, +1 (813)248-0585



SECTION 2: Hazards identification

- 2.1 Classification of the substance or mixture
- Classification according to Regulation (EC) No 1272/2008
Classifications listed also are applicable to the OSHA GHS Hazard Communication Standard (29CFR1910.1200).



exploding bomb

- Exp. 1.4 H204 Fire or projection hazard.
- Classification according to Directive 67/548/EEC or Directive 1999/45/EC Not applicable.
- Information concerning particular hazards for human and environment:
The product has to be labelled due to the calculation procedure of the "General Classification guideline for preparations of the EU" in the latest valid version.
- Classification system:
The classification is according to the latest editions of the EU-lists, and extended by company and literature data.
The classification is in accordance with the latest editions of international substances lists, and is supplemented by information from technical literature and by information provided by the company.
- 2.2 Label elements
- Labelling according to Regulation (EC) No 1272/2008
The product is additionally classified and labelled according to the Globally Harmonized System within the United States (GHS).
The product is classified and labelled according to the CLP regulation.

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- 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.
P374 Fight fire with normal precautions from a reasonable distance.
- Hazard description:
- WHMIS-symbols: Exempt under WHMIS.
- NFPA ratings (scale 0 - 4)



Health = 1
Fire = 3
Reactivity = 1

- HMIS-ratings (scale 0 - 4)



HEALTH 1
FIRE 3
REACTIVITY 1

- HMIS Long Term Health Hazard Substances

None of the ingredients are listed.

- 2.3 Other hazards

- Results of PBT and vPvB assessment
- PBT: Not applicable.
- vPvB: Not applicable.

SECTION 3: Composition/information on ingredients

- 3.2 Mixtures
- Description: Mixture of substances listed below with nonhazardous additions.

- Dangerous components:

CAS: 7767-78-1	potassium nitrate	O R8 Ox. Sol. 2, H272	60-80%
EINECS: 231-818-8			
CAS: 7704-34-9	sulfur	Xi R38 Skin Irrit. 2, H315	10-20%
EINECS: 231-722-6			
Index number: 016-094-00-1			

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· Additional information: For the wording of the listed risk phrases refer to section 16.

SECTION 4: First aid measures

- 4.1 Description of first aid measures
- General information: No special measures required.
- 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 medical help for blistering or open wounds.
- After eye contact:
 - Remove contact lenses if worn.
 - Rinse opened eye for several minutes under running water. If symptoms persist, consult a doctor.
- After swallowing:
 - Unlikely route of exposure.
 - Rinse out mouth and then drink plenty of water.
 - Do not induce vomiting. Seek medical attention.
- 4.2 Most important symptoms and effects, both acute and delayed
 - Adverse health effects are not reasonably expected from normal use of product.
 - Methaemoglobinemia
- Hazards Hazards only apply to cases of ingestion.
- 4.3 Indication of any immediate medical attention and special treatment needed
 - Contains nitrates. Consult literature for specific antidotes.

SECTION 5: Firefighting measures

- 5.1 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.
- 5.2 Special hazards arising from the substance or mixture
 - During heating or in case of fire poisonous gases are produced.
- 5.3 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.

SECTION 6: Accidental release measures

- 6.1 Personal precautions, protective equipment and emergency procedures
 - Keep away from ignition sources.

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- 6.2 Environmental precautions: Do not allow to enter sewers/ surface or ground water.
- 6.3 Methods and material for containment and cleaning up:
 - Pick up manually.
 - Send for recovery or disposal in suitable receptacles.
- Dispose contaminated material as waste according to item 13.
- 6.4 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.

SECTION 7: Handling and storage

- 7.1 Precautions for safe handling Handle with care.
- Information about fire - and explosion protection:
 - Keep ignition sources away - Do not smoke.
 - Emergency cooling must be available in case of nearby fire.
- 7.2 Conditions for safe storage, including any incompatibilities
 - Storage:
 - Requirements to be met by storerooms and receptacles:
 - Avoid storage near extreme heat, ignition sources or open flame.
 - Protect from humidity and water.
 - Information about storage in one common storage facility:
 - Do not store together with acids.
 - Store away from flammable substances.
 - Protect from humidity and water.
 - Further information about storage conditions:
 - Store in a cool place.
 - Storage Temperatures : 32-140 ° F / 0-60 °C.
 - Store in dry conditions.
- 7.3 Specific end use(s) No further relevant information available.

SECTION 8: Exposure controls/personal protection

- Additional information about design of technical facilities: No further data; see item 7.
- 8.1 Control parameters
 - Ingredients 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.
 - DNELs No further relevant information available.
 - PNECs No further relevant information available.
- Additional information: The lists valid during the making were used as basis.

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- **8.2 Exposure controls**
- **Personal protective equipment:**
The usual precautionary measures are to be adhered to when handling chemicals. 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.
- **Respiratory protection:** Not required under normal conditions of use.
- **Protection of hands:**
Gloves not required under normal conditions of use.
Wear protective gloves to handle contents of damaged or leaking units.
- **Eye protection:** Follow OSHA or EU guidelines concerning the use of protective eyewear.
- **Body protection:** Not required under normal conditions of use.
- **Limitation and supervision of exposure into the environment**
No further relevant information available.
- **Risk management measures**
See Section 7 for additional information.
No further relevant information available.

SECTION 9: Physical and chemical properties

- **9.1 Information on basic physical and chemical properties**
- **General Information**
- **Appearance:**
Form: Kraft colored paper cylinders with grey nozzle at one end.
Colour: Light grey
Sulfurous
- **Odour:** Not determined.
- **Odour threshold:** Not applicable.
- **pH-value:** Not applicable.
- **Change in condition**
Melting point/Melting range: Not Determined.
Boiling point/Boiling range: Undetermined.
- **Flash point:** Not applicable.
- **Flammability (solid, gaseous):** Contact with combustible material may cause fire.
- **Auto/Self-ignition temperature:** 540 °F / 282 °C
- **Decomposition temperature:** Not determined.
- **Self-igniting:** Product is not self-igniting.
- **Danger of explosion:** Not determined.
- **Explosion limits:**
Lower: Not determined.
Upper: Not determined.

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- **Oxidising properties**
Oxidizer
- **Vapour pressure:** Not applicable.
- **Density:** Not determined.
- **Relative density** Not determined.
- **Vapour density** Not applicable.
- **Evaporation rate** Not applicable.
- **Solubility in / Miscibility with water:** Partly soluble.
- **Partition coefficient (n-octanol/water):** Not determined.
- **Viscosity:** Not applicable.
- **Dynamic:** Not applicable.
- **Kinematic:** Not applicable.
- **9.2 Other information**
No further relevant information available.

SECTION 10: Stability and reactivity

- **10.1 Reactivity**
- **10.2 Chemical stability**
Thermal decomposition / conditions to be avoided:
No decomposition if used and stored according to specifications.
Avoid temperatures above 140 °F / 60 °C.
- **10.3 Possibility of hazardous reactions**
Reacts with acids.
Reacts with flammable substances.
Flammable.
- **10.4 Conditions to avoid** Keep ignition sources away - Do not smoke.
- **10.5 Incompatible materials:** No further relevant information available.
- **10.6 Hazardous decomposition products:**
Carbon monoxide and carbon dioxide
Nitrogen oxides
Sulphur oxides (SOx)

SECTION 11: Toxicological information

- **11.1 Information on toxicological effects**
- **Acute toxicity:**
- **Primary irritant effect:**
on the skin: Not determined.
on the eye: Not determined.
- **Sensitisation:** No sensitising effects known.

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Additional toxicological information:
When used and handled according to specifications, the product does not have any harmful effects to our experience and the information provided to us.

SECTION 12: Ecological information

- 12.1 Toxicity: Aquatic toxicity: No further relevant information available.
- 12.2 Persistence and degradability: No further relevant information available.
- 12.3 Bioaccumulative potential: No further relevant information available.
- 12.4 Mobility in soil: No further 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 of the environment is unlikely.
- 12.5 Results of PBT and vPvB assessment: Water hazard class 1 (German Regulation) (Self-assessment); slightly hazardous for water
- PBT: Not applicable.
- vPvB: Not applicable.
- 12.6 Other adverse effects: No further relevant information available.

SECTION 13: Disposal considerations

- 13.1 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. Residual materials should be treated as hazardous.

SECTION 14: Transport information

- 14.1 UN-Number: UN1325 (DOT SP-7887) or NA0323
- DOT: UN0432
- 14.2 UN proper shipping name: Flammable solid, organic, n.o.s. (Model rocket kits containing motors with or without un-installed igniters), Articles, Pyrotechnic
- ADR, IMDG, IATA: (Contd. on page 8)

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14.3 Transport hazard class(es)
DOT



- Class: 4.1 Flammable solids, self-reactive substances and solid desensitised explosives.
- Label: 4.1
- ADR, IMDG, IATA



- Class: 1.4
- Label: 1.4S
- 1.4S
- II
- No
- Shipped via the United States Postal Service via Surface Mail Only as: Toy Propellant Devices; NA0323, Class 1.4S/ PG II for engines with ≤30 g of propellant. Engines with more than 30g of propellant may not be shipped by the USPS.
- Marking required when shipped under UN1325 only.

Special marking (IATA):



- Cargo Aircraft Only.
- 14.6 Special precautions for user: Not applicable. F-A, S-Q
- EMS Number: Not applicable.
- 14.7 Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code: Not applicable.
- UN "Model Regulation": UN0432, Articles, Pyrotechnic, 1.4S, II

SECTION 15: Regulatory information

- 15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture: United States (USA)
- SARA
- Section 355 (extremely hazardous substances): None of the ingredients are listed.
- Section 313 (Specific toxic chemical listings): None of the ingredients are listed.

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- TSCA (Toxic Substances Control Act):
All ingredients are listed.
 - Proposition 65 (California):
1317-95-9 Silica-Crystalline Tripoli
 - Chemicals known to cause reproductive toxicity for females:
None of the ingredients are listed.
 - Chemicals known to cause reproductive toxicity for males:
None of the ingredients are listed.
 - Chemicals known to cause developmental toxicity:
None of the ingredients are listed.
 - Carcinogenic Categories
 - EPA (Environmental Protection Agency)
None of the ingredients are listed.
 - IARC (International Agency for Research on Cancer)
None of the ingredients are listed.
 - TLV (Threshold Limit Value established by ACGIH)
None of the ingredients are listed.
 - NIOSH-Ca (National Institute for Occupational Safety and Health)
None of the ingredients are listed.
 - Canada
 - Canadian Domestic Substances List (DSL)
All ingredients are listed.
 - Canadian Ingredient Disclosure list (limit 0.1%)
None of the ingredients are listed.
 - Canadian Ingredient Disclosure list (limit 1%)
None of the ingredients are listed.
 - Other regulations, limitations and prohibitive regulations
 - Substances of very high concern (SVHC) according to REACH, Article 57
None of the ingredients are listed.
 - 15.2 Chemical safety assessment: A Chemical Safety Assessment has not been carried out.

SECTION 16: Other information
This information is based on our present knowledge. However, this shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.
Model rocketry is regulated in most states in accordance with NFPA 1122, Code for Model Rocketry.

· Relevant phrases
H272 May intensify fire; oxidiser.

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- H315 Causes skin irritation.
 - R38 Irritating to skin.
 - R8 Contact with combustible material may cause fire.
 - Abbreviations and acronyms:
ADR: Accord européen sur le transport des marchandises dangereuses par Route (European Agreement concerning the International Carriage of Dangerous Goods by Road)
IMDG: International Maritime Code for Dangerous Goods
DOT: US Department of Transportation
ATA: International Air Transport Association
GHS: Globally Harmonised System of Classification and Labelling of Chemicals
ACGIH: American Conference of Governmental Industrial Hygienists
EINECS: European Inventory of Existing Commercial Substances
ELINCS: European List of Notified Chemical Substances
CAS: Chemical Abstracts Service (division of the American Chemical Society)
NFPA: National Fire Protection Association (USA)
HMIS: Hazardous Materials Identification System (USA)
DNEL: Derived No-Effect Level (REACH)
PNEC: Predicted No-Effect Concentration (REACH)
EPA: Environmental Protection Agency (USA)
OSHA: Occupational Safety and Health (USA)
Cat. Sol.: 2: Oxidising Solids, Hazard Category 2
Skin Irrit.: 2: Skin corrosion/irritation, Hazard Category 2

