

SAFETY DATA SHEET

1. IDENTIFICATION

1.1 Product identifier

Product Name: Rocket Propellant

Customer Product Name: N/A

Product Number(s): HF0229, HF0697, HF0824, HF2082, etc.

Synonyms: Kerosene

CAS #: 8008-20-6

1.2 Recommended use of the chemical and restrictions on use

Uses: Fuel for engine development and testing

Restrictions: No data available

1.3 Name, address, and telephone number of the chemical manufacturer, importer, or other responsible party

Haltermann Solutions™

15635 Jacintoport Blvd.

Houston, TX 77015 USA

1-800-969-2542

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Fax: 281-457-1469

E-mail contact for SDS

1.4 Emergency telephone number

832-376-2026

800-424-9300

24 HR Emergency Assistance

24 HR CHEMTREC

2. HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture

Classification according to 29 CFR §1910.1200 (d)

Flammable liquids (Category 4)

Aspiration hazard (Category 1)

2.2 Label elements

Labeling according to 29 CFR §1910.1200 (f)

Pictogram(s):



Signal word: **Danger**

Hazard statement(s):

Combustible liquid.
 May be fatal if swallowed and enters airways.

Precautionary statement(s):

Prevention

Keep away from heat/sparks/open flames/hot surfaces. – No smoking.
 Do not eat, drink or smoke when using this product.
 Use personal protective equipment as required.

Response

IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician.
 Do NOT induce vomiting.
 In case of fire: Use powder, AFFF, foam, or carbon dioxide for extinction.

Storage

Store in a well-ventilated place. Keep cool.

Disposal

Dispose of contents/container to in accordance with local/regional/national/international regulations.

2.3 Other hazards **None**

3. COMPOSITION/INFORMATION ON INGREDIENTS

3.1 Substances

Chemical Name	CAS #	EINECS	Amount
KEROSENE	8008-20-6	232-366-4	100%
DISTILLATES, PETROLEUM, HYDROTREATED LIGHT	64742-47-8	265-149-8	70-100%
SOLVENT NAPHTHA, PETROLEUM, MEDIUM ALIPHATIC	64742-88-7	265-191-7	0-30%

4. FIRST AID MEASURES

4.1 Description of first aid measures

General advice

IF exposed or concerned: Get medical advice/attention.

Show this this safety data sheet to the doctor in attendance.

Inhalation

IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.

If breathing is difficult, give oxygen. Refer for medical attention.

Skin Contact

IF ON SKIN (or hair): Remove immediately all contaminated clothing. Rinse skin with water.

If skin irritation occurs: Get medical advice/attention.

Eye Contact

IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

If eye irritation persists: Get medical advice/attention.

Ingestion

IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician.

Do NOT induce vomiting.

If vomiting occurs spontaneously, keep head below hips to prevent aspiration.

4.2 Most important symptoms and effects, both acute and delayed

Acute

Eye irritation signs and symptoms may include a redness.

Skin irritation signs and symptoms may include dry skin and redness.

Respiratory irritation signs and symptoms may include a temporary burning sensation of the nose and throat, coughing, and/or difficulty breathing.

Breathing of high vapor concentrations may cause central nervous system (CNS) depression resulting in dizziness, light-headedness, headache, nausea, and loss of coordination.

Delayed

Long term or repeated exposure to this material may have effects on the central nervous system and defat the skin.

4.3 Indication of any immediate medical attention and special treatment needed

No data available.

5. FIRE FIGHTING MEASURES

5.1 Extinguishing Media

In case of fire: Use powder, AFFF, foam, or carbon dioxide for extinction.

Use water spray to cool fire exposed containers.

Unsuitable Extinguishing Media

No data available.

5.2 Special hazards arising from the substance or mixture

Produces oxides of carbon upon combustion.

5.3 Advice for firefighters

As in any fire, wear self-contained breathing apparatus pressure-demand (OSHA/NIOSH approved or equivalent) and full protective gear.

5.4 Further information

The vapor is heavier than air, spreads along the ground and distant ignition is possible. Carbon monoxide may be evolved if incomplete combustion occurs.

NFPA Rating:

Health:	1
Flammability:	2
Reactivity:	0

6. ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures

Protective Measures

Evacuate danger area and consult an expert.

Isolate hazard area and deny entry to unnecessary or unprotected personnel. Stay upwind and keep out of low area. Remove all possible sources of ignition in the surrounding area.

Personal protection: self-contained breathing apparatus in large spill.

Ventilate contaminated area thoroughly shut off leaks if possible without personal risk.

Take precautionary measures against static discharge. Ensure electrical continuity by bonding and grounding all equipment.

6.2 Environmental precautions

Do NOT wash away into sewer. Do NOT let this chemical enter the environment

Use appropriate containment of product and fire fighting water to avoid environmental contamination. Prevent from spreading or entering drains, ditches, or rivers by using sand, earth, or other appropriate barriers.

Notify authorities if any exposure to the general public or environment occurs or is likely to occur. Local authorities should be advised if significant spillages cannot be contained.

6.3 Methods and material for containment and cleaning up

For large spills (> 1 drum), transfer by mechanical means such as a vacuum truck to a salvage tank for recovery or safe disposal. Do not flush away residues with water. Retain as contaminated waste.

For small spills (< 1 drum), transfer by mechanical means to a labeled, sealable container for product recovery or safe disposal. Absorb remaining liquid in sand or inert absorbent and remove to safe place.

6.4 Reference to other sections

Refer to Section 8 for personal protection advice and Section 13 for disposal information.

7. HANDLING AND STORAGE

7.1 Precautions for safe handling

Keep away from heat/sparks/open flames/hot surfaces. – No smoking.
 Avoid breathing vapors or mists. Avoid contact with eyes or skin.
 Wear protective gloves/protective clothing/eye protection/face protection.
 Do not eat, drink or smoke when using this product.
 Wash thoroughly after handling.

7.2 Conditions for safe storage, including any incompatibilities

Store in a well-ventilated place. Keep container tightly closed.
 Store separated from strong oxidants. Can react with strong oxidants causing fire and explosion hazard.
 Store locked up.
 Ensure that all local regulations regarding handling and storage facilities are followed.

7.3 Specific end use(s)

No data available.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 Permissible Exposure Limits

Compound Name	CAS #	Source 1	Source 2	BEI/Skin Notation
KEROSENE	8008-20-6	ACGIH TWA: 200 mg/m ³	N.D.	May be absorbed through the skin!
DISTILLATES, PETROLEUM, HYDROTREATED LIGHT	64742-47-8	OSHA TWA: 500 ppm	N.D.	N.D.
SOLVENT NAPHTHA, PETROLEUM, MEDIUM ALIPHATIC	64742-88-7	OSHA TWA: 500 ppm	N.D.	N.D.

N.D. - No data available

ACGIH: American Conference of Governmental Industrial Hygienists

OSHA: U.S. Occupational Health and Safety Administration

TWA: Time weighted average

BEI: Biological Exposure Indices

8.2 Exposure Controls

The level of protection and types of controls necessary will vary depending upon potential exposure conditions. Select controls based on a risk assessment of local circumstances. Appropriate measures may include the following:

Use sealed systems as far as possible. Adequate explosion-proof ventilation to control airborne concentrations below the exposure limits. Local exhaust ventilation is recommended.

Facilities storing or utilizing this material should be equipped with an eyewash facility and a safety shower.

8.3 Personal Protective Equipment

Use personal protective equipment as required.

All personal protective equipment (PPE) should meet recommended national standards. Check with PPE suppliers for more information.

Respiratory Protection

Use only with adequate ventilation. If engineering controls do not maintain airborne concentrations at a level which is adequate to protect worker health, an approved respirator should be used.

When there is potential for airborne exposures in excess of applicable limits, wear NIOSH/MSHA approved respiratory protection. Contact respirator supplier for specific recommendations.

For situations where high concentrations of vapors may be present, use an approved supplied air respirator operated in positive pressure mode.

Hand Protection

Where hand contact with this material may occur, use gloves that meet applicable standards.

Specific glove information is provided based on published literature and glove manufacturer data. Glove suitability and breakthrough time will differ depending upon the specific use conditions.

Contact glove manufacturer for advice on glove selection and breakthrough times for your use conditions. Inspect and replace worn or damaged gloves.

Eye Protection

Chemical splash goggles which meet the national standards should be used when handling this material.

Skin Protection

Chemical resistant suit including boots and gloves should be used when handling this material.

Specific Hygiene Measures

Do not eat, drink, or smoke when handling this material. Wash hands thoroughly after handling.

Routinely wash work clothing and protective equipment to remove contaminants. Discard contaminated clothing and footwear that cannot be cleaned.

Monitoring Methods

Monitoring of the vapor concentrations of chemicals in the workplace may be required to confirm compliance with OEL and adequacy of exposure controls.

Sources for recommended air monitoring methods include:

USA: National Institute of Occupational Safety and Health (NIOSH): Manual of Analytical Methods, <http://www.cdc.gov/niosh/nmam/nmammenu.html>.

USA: Occupational Safety and Health Administration (OSHA): Sampling and Analytical Methods, <http://osha.gov/dts/sltc/methods/toc.html>.

Environmental Exposure Controls

Local guidelines for emissions limits for volatile substances must be observed for the discharge of exhaust air containing vapors. See Sections 6, 7, 12, and 13 for more information on environmental exposure controls.

9. PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

(a) Appearance	Form:	Liquid
	Color:	Clear to light yellow
(b) Odor		Mild
(c) Odor threshold		No data available
(d) pH		No data available
(e) Melting/freezing point		No data available
(f) Initial boiling point and boiling range		170 - 365 °F
(g) Flash point		152 - 157 °F
(h) Evaporation rate		No data available
(i) Flammability (solid, gas)		No data available
(j) Upper/lower flammability or explosive limits		0.7 - 5 volume % in air
(k) Vapor pressure		No data available
(l) Vapor density		4.5 (air = 1)
(m) Relative density		No data available
(n) Solubility (ies)		Insoluble in water.
(o) Partition coefficient: n-octanol/water		No data available
(p) Auto-ignition temperature		410 °F
(q) Decomposition temperature		No data available
(r) Viscosity		No data available

9.2 Other information

Gravity		33 - 42 °API
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10. STABILITY AND REACTIVITY

10.1 Reactivity

May react with strong oxidants causing fire and explosion hazard.

10.2 Chemical Stability

This material is stable under normal conditions of use.

Hazardous polymerization will not occur.

10.3 Possibility of hazardous reactions

May react with strong oxidants causing fire and explosion hazard.

10.4 Conditions to Avoid

Heat, sparks, open flames, and other sources of ignition. Avoid the build up of static electricity.

As a result of flow, agitation, etc., electrostatic charges can be generated.

10.5 Incompatible materials

Strong oxidizing agents.

10.6 Hazardous Decomposition Products

In the event of fire, oxides of carbon, hydrocarbons, fumes, and smoke may be produced.

11. TOXICOLOGICAL INFORMATION

11.1 Likely routes of exposure

Likely routes of exposure include: inhalation, eye and skin contact, and ingestion.

11.2 Signs and symptoms of exposure

Eye irritation signs and symptoms may include redness.

Skin irritation signs and symptoms may include dryness and roughness.

If material enters lungs, signs and symptoms may include coughing, choking, wheezing, difficulty in breathing, chest congestion, shortness of breath, and/or fever. The onset of respiratory symptoms may be delayed for several hours after exposure.

Breathing of high vapor concentrations may cause central nervous system (CNS) depression resulting in dizziness, light-headedness, headache, nausea, and loss of coordination.

Respiratory irritation signs and symptoms may include a temporary burning sensation of the nose and throat, coughing, and/or difficulty breathing.

11.3 Delayed and immediate effects/Chronic effects from short- and long-term exposure

Eye

This material is not expected to cause serious/permanent eye damage but irritation may occur.

Skin

This material is not expected to cause skin corrosion but irritation may occur.

Inhalation

Inhalation of this material may cause: cough, dizziness, headache, sore throat, nausea, vomiting, confusion, and unconsciousness.

Ingestion

Ingestion of this material may cause: abdominal pain, cough, dizziness, headache, sore throat, diarrhea, nausea, loss of appetite, vomiting, and unconsciousness.

Chronic effects

Long term or repeated exposure to this material may cause dermatitis.

Subchronic effects

This substance and vapor is irritating to the eyes, skin, and respiratory tract.

Respiratory or skin sensitization

No data available.

Germ cell mutagenicity

No data available.

Reproductive toxicity

No data available.

Specific target organ toxicity - single exposure

No data available.

Specific target organ toxicity - repeat exposure

No data available.

Aspiration hazard

Aspiration into the lungs when swallowed or vomited may cause chemical pneumonitis which can be fatal.

Potential health effects

This substance is slightly irritating to the skin and the respiratory tract. Swallowing the liquid may cause aspiration into the lungs with the risk of chemical pneumonitis.

The substance may cause effects on the nervous system and liver, resulting in impaired function.

Target organ(s): Skin. Respiratory system. Central nervous system (CNS).

11.4 Acute Toxicity Estimates

Compound Name	CAS #	TEST - SPECIES - RESULT
KEROSENE	8008-20-6	Oral LD50 - Rabbit: >2000 mg/kg; Dermal LC50 - Rat: >2000 mg/kg; Inhalation LC50 - Rat: >5200 mg/4 hr
SOLVENT NAPHTHA, PETROLEUM, MEDIUM ALIPHATIC	64742-88-7	Oral LD50 - Rat: >2000 mg/kg

11.5 Carcinogenicity

IARC (International Agency for Research on Cancer):

No components of this product are listed as a carcinogen or possible carcinogen by IARC.

NTP (National Toxicology Program):

No components of this product are listed as a known or reasonably anticipated carcinogen by NTP.

OSHA (U.S. Occupational Health and Safety Administration):

No components of this product are listed as a carcinogen by OSHA (29CFR 1910 Subpart Z).

12. ECOLOGICAL INFORMATION

12.1 Ecotoxicity

This material may be hazardous to aquatic organisms.

Compound Name	CAS #	TEST-SPECIES-RESULTS
DISTILLATES, PETROLEUM, HYDROTREATED LIGHT	64742-47-8	LC 50 - Fish: 2.6mg/ L / 96 Hr
SOLVENT NAPHTHA, PETROLEUM, MEDIUM ALIPHATIC	64742-88-7	LC 50 - Fish: >1000 mg/L; LC 50 - Algae: >2000 mg/L

12.2 Persistence and Degradability

According to National Library of Medicine's Hazardous Substances Data Bank [NLM HSDB], this material is expected to biodegrade.

12.3 Bioaccumulative potential

Some components of kerosene may significantly bioconcentrate in fish and aquatic organisms and strongly adsorb to sediment and suspended organic matter. [NLM HSDB]

12.4 Mobility in soil

This material is expected to have low mobility in soil. [NLM HSDB]

12.5 Other adverse effects

No data available.

13. DISPOSAL CONSIDERATIONS

13.1 Waste treatment methods

Product disposal

Recover or recycle if possible.

It is the responsibility of the waste generator to determine the physical characteristics and toxicity of the material generated in order to properly designate the waste classification and disposal methods in compliance with applicable regulations.

Do not dispose into the environment, in drains, or allow to enter waterways. Waste product should not be allowed to contaminate soil or water.

Container disposal

Follow all SDS/label precautions even after container is emptied because they may retain product residues.

Do not attempt to refill or clean containers without proper instructions. Empty drums should be completely drained and safely stored until appropriately reconditioned or disposed.

Empty containers should be taken for recycling, recovery, or disposal through a suitable qualified or licensed contractor and in accordance with governmental regulations.

Do not pressurize, cut, weld, braze, solder, drill, grind, or expose such containers to heat, flame, sparks, static electricity, or other sources of ignition as this may cause them to explode.

14. TRANSPORT INFORMATION

14.1 UN number	UN 1223
14.2 UN proper shipping name	Kerosene
14.3 Transport hazard class(es)	Combustible
14.4 Packing group	III
14.5 Environmental hazards	
IMDG Marine pollutant:	No
14.6 Special precautions for the user	No data available.

14.7 Transport in bulk according to Annex II of MARPOL 73/78 and IBC Code

MARPOL Category: No data available.

IBC Code: 03

Note: Non-bulk packaging of this material (<119 gallons) is not regulated by U.S. DOT.

15. REGULATORY INFORMATION

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture

This safety datasheet complies with the requirements of 29 CFR §1910.1200

This material or all of its components are listed on the Inventory of Existing Chemical Substances under the Toxic Substance Control Act (TSCA) or are exempt from reporting.

This material or all of its components are listed on the Canadian Domestic Substances List (DSL) or Non-Domestic Substances List (NDSL).

FEDERAL REGULATORY LISTS:

Compound Name	CAS #	SARA 313	CERCLA	RCRA	CAA
KEROSENE	8008-20-6	N.L	N.L	N.L	N.L
DISTILLATES, PETROLEUM, HYDROTREATED LIGHT	64742-47-8	N.L	N.L	N.L	N.L
SOLVENT NAPHTHA, PETROLEUM, MEDIUM ALIPHATIC	64742-88-7	N.L	N.L	N.L	N.L

N.L. - Not listed on regulatory list

CALIFORNIA REGULATIONS:

This product contains no listed substances known to the State of California to cause cancer, birth defects or other reproductive harm, at levels which would require a warning under the statute.

PENNSYLVANIA REGULATIONS:

The following product components are cited on the Pennsylvania Hazardous Substances List and/or the Pennsylvania Environmental Hazardous Substances List, and are present at levels which require reporting.

Compound Name	CAS #	LISTING	AMOUNT
KEROSENE	8008-20-6	PA RTK	100%

To the best of our knowledge, this product does not contain any components cited on the Pennsylvania Special Hazardous Substances List.

ADDITIONAL STATE REGULATIONS:

Components of this product are found on the following state lists.

Compound Name	CAS #	STATE LISTS
KEROSENE	8008-20-6	FL, MA, NJ, RI

15.2 Chemical safety assessment

No data available.

16. OTHER INFORMATION

Reason for Issue: This revision Section 14.
Approval date: July 6, 2015
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END OF SDS
