SAFETY DATA SHEET

1. IDENTIFICATION

1.1 Product identifier

Product Name: JP-5, MIL-DTL-5624
Customer Product Name: N/A
Product Number(s): HF 0161
CAS #: Mixture

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 Fax: 281-457-1469
mhoveraker@jhaltermann.com E-mail contact for SDS

1.4 Emergency telephone number

832-376-2026 24 HR Emergency Assistance
800-424-9300 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)
Carcinogenicity (Category 2)
Specific target organ toxicity - repeated exposure (Category 2)
Specific target organ toxicity - single exposure (Category 3)
Aspiration hazard (Category 1)

2.2 Label elements

Labeling according to 29 CFR §1910.1200 (f)

Symbol(s):

Signal word: **Danger**

Hazard statement(s):
Combustible liquid.
May be fatal if swallowed and enters airways.
Suspected of causing cancer.
May cause damage to organs through prolonged or repeated exposure.
May cause drowsiness or dizziness.

Precautionary statement(s):

Prevention:
Obtain special instructions before use.
Do not handle until all safety precautions have been read and understood.
Keep away from heat/sparks/open flames/hot surfaces. – No smoking.
Do not breathe dust/fume/gas/mist/vapors/spray.
Use only outdoors or in a well-ventilated area.
Wear protective gloves/protective clothing/eye protection/face protection.

Response:
IF exposed or if you feel unwell: Get medical advice/attention.
Get medical advice/attention if you feel unwell.
IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician.
Do NOT induce vomiting.
IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.
Call a POISON CENTER or doctor/physician if you feel unwell.
In case of fire: Use carbon dioxide, foam, AFFF, or dry powder for extinction.

Storage:
Store in a well-ventilated place. Keep container tightly closed. Keep cool.
Store locked up.

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	75-95%
PETROLEUM DISTILLATES	8002-05-9	232-298-5	5-25%
NAPHTHALENE	91-20-3	202-049-5	0-5%

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, seek 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

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.

Delayed

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

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 carbon dioxide, foam, AFFF, or dry powder for extinction.

Use water spray to cool fire exposed containers.

Unsuitable Extinguishing Media

Water jet spray.

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

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

Collect leaking liquid in sealable containers. Absorb remaining liquid in sand or inert absorbent and remove to safe place. Do NOT let this chemical enter the environment.

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.

Use closed system, ventilation, explosion-proof electrical equipment and lighting. Prevent build-up of electrostatic charges (e.g., by grounding). Do NOT use compressed air for filling, discharging, or handling. Use non-sparking hand tools.

Wear protective gloves/protective clothing/eye protection/face protection.

Do no 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 locked up.

Store separated from strong oxidants.

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/m3	N.D.	May be absorbed through the skin!
PETROLEUM DISTILLATES	8002-05-9	OSHA TWA: 500 ppm	N.D.	N.D.

NAPHTHALENE	91-20-3	ACGIH TWA: 10 ppm; ACGIH STEL: 15 ppm	OSHA TWA: 10 ppm	May be absorbed through the skin!

N.D. - No data available

ACGIH: American Conference of Governmental Industrial Hygienists
OSHA: U.S. Occupational Health and Safety Administration
TWA: Time weighted average
STEL: Short Term Exposure Limit
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:	Colorless	
(b) Odor		No data available	
(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		No data available	
(g) Flash point		>60	°C
(h) Evaporation rate		No data available	
(i) Flammability (solid, gas)		No data available	
(j) Upper/lower flammability or explosive limits		No data available	
(k) Vapor pressure		No data available	
(l) Vapor density		No data available	
(m) Density		No data available	
(n) Solubility (ies)		No data available	
(o) Partition coefficient: n-octanol/water		No data available	
(p) Auto-ignition temperature		No data available	
(q) Decomposition temperature		No data available	
(r) Viscosity		No data available	

9.2 Other information

Gravity	36.0 - 48.0	°API

10. STABILITY AND REACTIVITY

10.1 Reactivity
No data available.

10.2 Chemical Stability
This material is stable under normal conditions of use.
Hazardous polymerization will not occur.

10.3 Possibility of hazardous reactions
Reacts 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.

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

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

Eye
Contact with eyes may cause redness. This material is not expected to cause serious/permanent eye damage or to be toxic through eye contact.

Skin
Contact with this material may cause dry skin, but it is not expected to cause serious irritation/corrosion. It is not expected to be toxic through dermal contact.

Inhalation
Inhalation of this material may cause cough, dizziness, drowsiness, headache, nausea, and unconsciousness.

Ingestion
Ingestion of this material may cause cough, sore throat, dizziness, drowsiness, headache, nausea, diarrhea, vomiting, and unconsciousness.

Chronic effects
Long term or repeated exposure to this material may defat the skin.

Subchronic effects
The vapor is slightly irritating to the eyes and the respiratory tract . The substance may cause effects on the central nervous system. Exposure to high concentration of vapors may result in unconsciousness.

Respiratory or skin sensitization
No data available.

Germ cell mutagenicity
No data available.

Reproductive toxicity
No data available.

Specific target organ toxicity - single exposure
Central Nervous System (CNS): Exposure can cause effects on the central nervous system.

Specific target organ toxicity - repeat exposure
Repeated exposure to this material may cause effects on the liver leading to impaired function.

Blood: May have effects on the blood resulting in chronic hemolytic anemia. (Naphthalene)

Vision/Visual System: May cause cataracts. (Naphthalene).

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

Potential health effects
Harmful: may cause lung damage if swallowed. Possibility of organ or organ system damage from prolonged exposure; see Section 11 for details.

May cause effects on the central nervous system and liver.

Target organ(s): Central nervous system (CNS), liver.

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
PETROLEUM DISTILLATES	8002-05-9	Oral LD50 - Rat: >5000 mg/kg; Dermal LD50 - Rabbit > 2000 mg/kg
NAPHTHALENE	91-20-3	Oral LD50 - Rat: 490 mg/kg Oral LD50 - Rat (Sprague Dawley): 2600 mg/kg Dermal LC50 - Rat: > 20 g/kg

11.5 Carcinogenicity

IARC (International Agency for Research on Cancer):
Naphthalene is listed as: Possibly carcinogenic to humans (Group 2B).

NTP (National Toxicology Program):
Naphthalene is listed as: Reasonably anticipated to be a human carcinogen.

OSHA (U.S. Occupational Health and Safety Administration):
No components listed as a carcinogen by OSHA (29CFR 1910 Subpart Z).

12. ECOLOGICAL INFORMATION

12.1 Ecotoxicity

Compound Name	CAS #	TEST-SPECIES-RESULTS
PETROLEUM DISTILLATES	8002-05-9	LC 50 - Fish: 3 mg/ L / 96 Hr; EC 50 - Crustaceans: 5.3 mg/ L /48 Hr
NAPHTHALENE	91-20-3	LC 50 Fish (min): 0.213 mg/L/96 Hr; LC 50-Oncorhynchus Gorbuscha:1.4 mg/L/96 Hr; EC 50 - Pandalus Goniurus: 2.2 mg/L/96 Hr; EC 50 - Pimephales Promelas: 6.35 mg/L/48 Hr

12.2 Persistence and Degradability

No data available.

12.3 Bioaccumulative potential

No data available.

12.4 Mobility in soil

No data available.

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 1863

14.2 UN proper shipping name — Fuel, aviation, turbine engine

14.3 Transport hazard class(es) — Combustible

14.4 Packing group — III

14.5 Environmental hazards — Napthalene is listed in Appendix B to 49 CFR §172.101, but is present at a concentration below which the Marine Pollutant designation would be triggered.

IMDG Marine pollutant: Yes

14.6 Special precautions for the user

Emergency Response Guide (ERG) Number: 128

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

MARPOL Category: No data available.

IBC Code: 03

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.

FEDERAL REGULATORY LISTS:

Compound Name	CAS #	HAP [1]	SARA 313 [3]	CERCLA RQ (lb) [4]	RCRA Code [5]	CAA 112(r) [2]
KEROSENE	8008-20-6	N.L.	N.L	N.L	N.L	N.L
PETROLEUM DISTILLATES	8002-05-9	N.L.	N.L	N.L	N.L	N.L
NAPHTHALENE	91-20-3	HAP	313	100	U165	N.L

N.L. - Not listed on regulatory list

As defined under SARA 311 and 312, this product contains materials that are designated as having the following hazards: Acute Chronic Fire

Clean Air Act - CAA

[1] HAP: Hazardous Air Pollutant under the Clean Air Act Section 112 (b) [42 U.S.C. 7401 et seq]

[2]CAA 112(r): Regulated Toxic Substances and Threshold Quantities for Accidental Release Prevention [40 CFR 68]

Superfund Amendments and Reauthorization Act - SARA Title III

SARA 311/312: Hazardous Chemical Reporting [40CFR 370.2]

[3]SARA 313: Toxic Chemical Release Reporting [40CFR 372.65]

Comprehensive Environmental Response, Compensation, and Liability Act - CERCLA

[4]Reportable Quantities - RQ [40 CFR 302]

[5]Resource Conservation and Recovery Act - RCRA Waste Codes [40 CFR 302]

CALIFORNIA REGULATIONS:

WARNING: This product contains substances known to the State of California to cause cancer at levels which would require a warning under the statute.

Compound Name	CAS #	TYPE OF TOXICITY	AMOUNT
NAPHTHALENE	91-20-3	CANCER	0-5%

This product contains no listed substances known to the State of California to cause 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	75-95%
NAPHTHALENE	91-20-3	PA RTK ENVIRONMENTAL	0-5%

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
PETROLEUM DISTILLATES	8002-05-9	FL, MA, ME, NJ, RI
NAPHTHALENE	91-20-3	DE, FL, MA, ME, MN, NJ, NY, RI, WI

15.2 Chemical safety assessment

No data available.

16. OTHER INFORMATION

Reason for Issue: This revision updates Section 14.
Approval date: May 31, 2017
Supersedes date: May 6, 2015

Abbreviations that may be used in this document

ACGIH: American Conference of Governmental Industrial Hygienists
AIHA: American Industrial Hygiene Association
BEI: Biological Exposure Indices
CERCLA: Comprehensive Environmental Response, Compensation, and Liability Act
DSL: Canadian Domestic Substance List
EINECS: European Inventory of Existing Commercial Chemical Substances
HAP: Hazardous Air Pollutant under the United States Clean Air Act
HSDB: Hazardous Substances Data Bank
IARC: International Agency for Research on Cancer
IMDG: International Maritime Dangerous Goods Code
N.D.: No data available
N.L.: Not listed on regulatory list
NIOSH: United States National Institute for Occupational Safety and Health
NTP: United States National Toxicology Program
OSHA: United States Occupational Health and Safety Administration
RQ: Reportable Quantities
SARA: United States Superfund Amendments and Reauthorization Act
STEL: Short Term Exposure Limit

TSCA: United States Toxic Substances Control Act
TWA: Time weighted average
WEEL: Workplace Environmental Exposure Level

****

This information is furnished without warranty, expressed or implied except that it is accurate to the best knowledge of Haltermann Solutions™. The data on this sheet are related only to the specific material herein. Haltermann Solutions™ assumes no responsibility for the use or reliance upon these data.

****

****

END OF SDS

****