



Safety Data Sheet

1. Identification

Product Name: Natural Gasoline
Synonyms: Debutanized Natural Gasoline - DNG
Chemical Family: Aliphatic Hydrocarbon Mixture
Manufacturers Name: Whiting Oil and Gas Corporation
Address: 1700 Broadway, Suite 2300
Denver, Colorado 80290
Product Use: Hydrocarbon fuel
Phone Number for Information: (303) 837-1661
Emergency Phone Number (Chemtrec): (800) 424-9300

Natural Gasoline is a mixture of saturated aliphatic hydrocarbons (predominantly C5 through C8) separated from natural gas by processes such as refrigeration or absorption.

2. Hazard Identification

DANGER!
FLAMMABLE LIQUID

ASPIRATION OF LIQUID IN THE LUNGS CAN PRODUCE CHEMICAL PNEUMONIA OR EVEN DEATH. PRODUCES SKIN IRRITATION UPON PROLONGED OR REPEATED SKIN CONTACT. MAY CONTAIN BENZENE WHICH CAN CAUSE CANCER OR BE TOXIC TO BLOOD-FORMING ORGANS.

NO SMOKING!
KEEP AWAY FROM HEAT/SPARKS/OPEN FLAMES/HOT SURFACES. WEAR PROTECTIVE GLOVES, CLOTHING AND EYE WEAR WHEN HANDLING. AVOID RELEASE INTO THE ENVIRONMENT.

Globally Harmonized System (GHS) Information

Physical Hazards Classification

Flammable Liquids, Category 1

Health Hazards Classification

Skin Corrosion/irritation, Category 2

Serious eye damage/eye irritation, Category 2b

Carcinogenicity, Category 1B

Specific Target organ toxicity – single exposure, Category 3 (drowsiness and dizziness)


Specific Target organ toxicity – repeated exposure, Category 2 (bone marrow, liver, thymus, nervous system)

Aspiration hazard, Category 1

Environmental Hazards Classification

Acute Toxicity to the aquatic environment, Category 2

Chronic Toxicity to the aquatic environment, Category 2

GHS Label Information	
	
Symbols:	
Signal Word: Danger	
Hazard Statements:	Precautionary Statements:
Physical Hazards Highly flammable liquid and vapor	Prevention Keep away from heat/sparks/open flames/hot surfaces – no smoking Keep container tightly closed Ground/bond container and receiving equipment Use explosion proof electrical/ventilation/lighting equipment Use only non-sparking tools Take precautionary measures against static discharge Wear protective gloves/protective clothing/eye protection/face protection Obtain special instructions before use Do not handle until all safety precautions have been read and understood Wash hands thoroughly after handling Do not breathe mists/vapors/spray Do not eat, drink or smoke when using this product Use only outdoors or in a well-ventilated area Avoid release to the environment
Health Hazards May cause cancer May be fatal if swallowed and enters airways Causes eye irritation May cause drowsiness or dizziness May cause damage to organs through prolonged or repeated exposure Causes skin irritation	Response IF ON SKIN (or hair): Remove all contaminated clothing. Rinse skin with water/shower In case of fire: use appropriate media for extinction If exposed or concerned: Get medical attention or advice IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses if present and easy to do. Continue rinsing. If irritation persists get medical advice/attention IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing. Collect spillage IF SWALLOWED: Rinse Mouth. Immediately call a poison control center or doctor/physician Do not induce vomiting
Environmental Hazards Harmful to aquatic life Harmful to aquatic life with long lasting effects	Storage Store locked up Store in a well-ventilated place. Keep container tightly closed. Disposal Dispose of contents/container in accordance with local/regional/national/international regulations

3. Composition/Information on Ingredients

<u>COMPOSITION</u>	<u>CAS NUMBER</u>	<u>PERCENT</u>
Natural Gasoline	68425-31-0	See approximate values below
n- and iso-Pentene	109-66-0	56-68%
n- Heptane	142-82-5	25-31%
n- Hexane	110-54-3	9-11%
n- and iso-Butane	106-97-8	0-1%
Benzene	71-43-2	0-1%

4. First Aid Measures

Eye Contact

Immediately flush eyes, while holding eyelids open, with large amounts of clean, low-pressure tepid water for at least 15 minutes. If symptoms, irritation or injury persists, worsen or develop, seek medical attention.

Skin Contact

Remove contaminated clothing/shoes, wipe excess from skin. Immediately flush skin with water for 15 minutes then wash with soap and water. If illness or adverse symptoms develop or irritation persists, seek medical attention. Discard contaminated leather goods.

Inhalation

Remove victim to fresh air and provide oxygen if breathing labored, shallow, or difficult. Rescuer must wear appropriate supplied air respirator to remove worker from contaminated area to fresh air. Give artificial respiration if victim is not breathing. Seek medical attention immediately.

Ingestion

Do not induce vomiting and seek immediate medical attention.

5. Fire-Fighting Measures

Extinguishing Media

For small fires, class B fire extinguishing media such as carbon dioxide or dry chemical can be used. Water spray, fog, and/or foam is recommended for larger fires.

Special Fire Fighting Procedures and Precautions

Avoid use of straight water streams. Water may be ineffective in extinguishing natural gasoline; however, water can be used to cool exposed surfaces. Maintain a safe distance from the fire and keep run-off water out of sewers and water bodies. Stay upwind and out of low areas.

Unusual Fire Explosion Hazards

Highly flammable vapors which are heavier than air may accumulate in low areas and/or spread along ground away from handling site and flash back.

NFPA Ratings

Health – 2

Flammability – 3

Reactivity – 0

Other – 0

Key: Least-0; Slight-1; Moderate-2; High-3; Extreme-4

6. Accidental Release Measures

Keep the public away. Isolate and evacuate the area. Stop leak if safe to do so and eliminate all ignition sources. Allow vapor to dissipate and ventilate low or closed areas to reduce the danger of explosion. Wear appropriate respirator and protective clothing. Recover and return product to proper containers.

7. Handling and Storage

Comply with all regulatory requirements. Store in suitable tanks or closed, labeled containers in a cool, well-ventilated area. Exercise good personal hygiene including removal of soiled clothing and prompt washing with soap and water.

Keep away from heat, sparks or flame. Extinguish pilot lights, cigarettes and turn off other sources of ignition prior to use and until all gas is gone. Containers, even those that have been emptied, can contain explosive vapors. Do not puncture, cut, drill, grind, weld or perform similar operations on or near containers. Bond and ground transfer containers.

Product should never be used as a solvent due to its flammable and potentially toxic properties. Siphoning by mouth can result in lung aspiration which can be harmful or fatal. Avoid skin contact.

8. Exposure Controls/Personal Protection

Occupational Exposure Limits

<u>COMPONENT</u>	<u>OSHA PEL</u>	<u>ACGIH TLV TWA</u>
Natural Gasoline	Not available	Not available
n- and iso-Pentene	1000 ppm	600 ppm
n- Heptane	500 ppm	400 ppm
n- Hexane	500 ppm	50 ppm
n- and iso-Butane	Not available	1000 ppm*
Benzene	1 ppm**/STEL 5 ppm	0.5 ppm

Notes:

* Aliphatic Hydrocarbon Gas (Alkane C1-C4)

** OSHA's action level is 0.5 ppm (29 CFR 1910.1028)

Engineering Controls

Maintain air concentrations below flammable limits and occupational exposure limits for chemical components by using ventilation and other engineering controls.

Personal Protective Equipment

Eye/Face Protection

Always use safety glasses with side shields. Goggles or a face shield are appropriate when there is a potential for splashing.

Skin Protection

Avoid unnecessary skin contact with material – use chemical resistant nitrile gloves as appropriate.

Respiratory Protection

Wear NIOSH approved organic vapor chemical cartridge or supplied air respirators when ventilation is inadequate or when exposures to any components exceed the occupational exposure limit. In case of firefighting, or a spill or leak resulting in unknown concentration, use NIOSH approved supplied air respirator. Do not enter storage compartments unless equipped with a NIOSH approved self-contained breathing apparatus (SCBA) with full face piece operated in a positive pressure mode.

Note:

Personal protection information shown in this section is based upon general information and normal uses and conditions. Where special or unusual uses or conditions exist, it is suggested that the expert assistance of an industrial hygienist or other qualified professional be sought.

9. Physical and Chemical Properties

Appearance and Odor: Colorless clear liquid with a strong hydrocarbon odor.

pH: not available

Melting Point: not available

Boiling Point: 96-102 °F

Flash Point and Method: -45°F / closed cup

Evaporation Rate: >1 (N-Butyl Acetate =1)

Flammable Limits: Varies based on components

Vapor Pressure: not available

Specific Gravity: 0.6-0.7 (water = 1.0)

Vapor Density: 1-3.9 (air=1)

Density: 5-6 pounds/gallon

Solubility: negligible

Partition Coefficient (n-octanol/water): not available

Autoignition Temperature: not available

Decomposition Temperature: not available

Viscosity: not available

10. Stability and Reactivity

Stability: Stable

Hazardous polymerization: Will not occur

Conditions and Materials to Avoid: Avoid heat, sparks, flame and contact with strong oxidizing agents such as nitrates, perchlorates, chlorine, and fluorine.

Hazardous Decomposition Products: Thermal decomposition products are highly dependent on the combustion conditions. Carbon monoxide and other unidentified organic compounds may be formed upon combustion.

11. Toxicological Information

Acute toxicity – May cause nausea, diarrhea, loss of appetite, dizziness, disorientation, headache, excitation, rapid respiration, drowsiness, labored breathing, anesthesia and other central nervous system effects. May cause lung paralysis and asphyxiation. Extreme overexposure may cause rapid unconsciousness and respiratory arrest.

Skin corrosion/irritation – Prolonged or repeated liquid contact can defat the skin and lead to moderate irritation and dermatitis.

Eye damage/irritation – May cause irritation, pain, blurred vision, redness, tearing and superficial corneal turbidity.

Sensitization – Not known to cause respiratory or skin sensitization. In excessive exposure conditions some components of natural gasoline may produce cardiac sensitization.

Germ cell mutagenicity – A weakly positive response was seen in the Mouse Lymphoma Mutagenic assay for Hexane.

Carcinogenicity – Product may contain benzene which is a known human carcinogen.

Reproductive toxicity – Not a known reproductive toxin (teratogen).

Specific Target Organs/Systemic Toxicity – Blood/bone marrow, CNS, respiratory, eye, skin.

Aspiration hazard – Inadvertent suction of liquid into the lungs. Even small quantities in the lungs can produce chemical pneumonitis, pulmonary edema and even death.

Other potential health effects – None identified.

12. Ecological Information

Product can cause fouling of shorelines and is harmful to aquatic life in low concentrations.

13. Disposal Considerations

This product as produced is not specifically listed as an EPA RCRA hazardous waste according to 40 CFR 261. However, when disposed of, it may meet the criteria of a “characteristic” hazardous waste (e.g. D001 – ignitable). This product could also contain benzene and could be considered hazardous because it exhibits the characteristic of “toxicity.” It is the responsibility of the user to determine if the material is considered hazardous for disposal under federal, state and local regulations.

14. Transportation Information

Department of Transportation Classification: Flammable Liquid

D.O.T. proper shipping name: Natural Gasoline

ID Number: UN 3295 (Hydrocarbons, liquid, n.o.s.)

Hazard Class: 3

Packing Group: 2

15. Regulatory Information

TSCA This product and/or its components are listed on the TSCA chemical inventory.

SARA Section 302 This product does not contain materials listed on the EPA's extremely hazardous substance list.

SARA Section 304 This product contains the following component(s) which in the event of a spill may be subject to SARA reporting requirements: benzene.

SARA Section 311/312 The following hazard categories apply to this product:

- Acute health hazard
- Chronic health hazard
- Fire hazard

SARA Section 313 This product may contain any the following component(s) which may be subject to reporting on a toxic release inventory: Benzene.

EPA-CWA Spills into or leading to surface waters that cause a sheen must be reported to the National Response Center, 800-424-8802.

16. Other Information

Date Prepared:	June 24, 2011
Revised:	October 30, 2013
Last Review Date:	October 30, 2013

Disclaimer:

The information and recommendations contained in this MSDS are believed to be accurate at the date of its preparation. Whiting Oil and Gas Corporation makes no representations or warranties, express or implied, with respect to the accuracy or completeness of the information contained herein. Whiting Oil and Gas Corporation assumes no responsibility for incorrect handling or use of the product or the inherent hazards in the product itself.