

Jet Fuel

Spill Assessment

Gather Available Information

Shipping Manifest Required

Product ID: Jet Fuel; FUEL, AVIATION, TURBINE ENGINE

TDG Class: Class 3 Flammable Liquid

UN# & PG: UN1863 PG III

Jet A1: Is the Standard Specification Fuel for aviation.

Freezing point is at -47°C

Mixed Load Limited Quantity: PG III 5L up to accumulation of 500kg

ERAP Index: None required for road vehicles

Passenger Vehicle Limitation: PG III 60L

Compatibility Issues: This product can act as a non-conductive flammable liquid (or static accumulators), and may form ignitable vapor-air mixtures in storage tanks or other containers.

Manufacture Information

Name/ Contact:

Tel:

Cell:

Assess the Volume Spilled

Total volume:

Number of Containers:

Product not spilled:

Product recovered / Contained:

Product Information:

Physical Classification: Liquid.

Color: clear, straw-yellow

Odor: Petroleum or Kerosene-like odor

Vapor Density: >4.5 (air = 1)

Solubility: Not soluble in water. However as much as 10% may dissolve into the water column through mixing.

Molecular Formula: Jet Fuel (Kerosene based) is a mixture of aliphatic hydrocarbons (straight chain alkanes) with a carbon length typically ranges from C₉ to C₁₆.

Specific Gravity: 0.81 (water = 1)

Flash Point: >38°C

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Indirect Photo-degradation: The reaction of Jet Fuel (kerosene based) with light and atmospheric oxygen produces a half-life of 0.2 to 1.5 days

Conditions of Instability: Reactive with oxidizing agents, peroxides, acids and alkalies

Conditions to avoid: High temperatures, open flames, sparks, welding, smoking and other ignition sources. Avoid static charge accumulation and discharge

Safety Assessment

Responders Safety

Public Security Perimeter: 50m for liquid spills

Evacuation Perimeter: 800m for major incident involving fire

PPE Requirement for minor spills: Safety Glasses. Skin protection (Long sleeves and pants). Respirator (limited protection). Gloves.

PPE Requirement for major spills: Splash Glasses/ Goggles. Rubber Boots. Gloves (Nitrile, Neoprene, PVC). Use NIOSH approved respirators (organic vapor cartridge) or SCBA to avoid inhalation of the vapors (usually at large spills).

Structural Fire Fighters' Protective Clothing: Only provides limited protection. Consider chemical protective clothing at large spills (i.e. TyChem or Saranex)

Routes of Entry: Skin contact, eyes, inhalation and ingestion

Acute Health Effects: Skin contact may cause irritation. May be absorbed through the skin if large areas of the skin are repeatedly exposed.

Eye contact may cause irritation.

Inhalation of vapors or mist may result in respiratory tract irritation and central nervous system effects including: headaches, dizziness, loss of balance and coordination, unconsciousness, coma, respiratory failure and death.

Decontamination Requirements: Full decon unit should be on standby.

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Product Safety Information:

Toxic Vapors: Fires involving diesel will release toxic gases.

Combustible: Jet Fuel is a combustible liquid, with Flammable liquid properties.

Vapors: Products of combustion include carbon dioxide, carbon monoxide and non-combusted hydrocarbons (Smoke).

Explosion Hazard: Vapors may form explosive mixture with air

Hazard Statement: Flammable Liquid and Vapor. Precautions must be taken to prevent static-initiated fire or explosion during handling, transfer. Bonding and grounding is mandatory

Fire Hazards: Use dry chemical, CO₂, water spray or fire fighting foam to extinguish. Do not use solid water stream as it may scatter and spread fire.

Major fires may require withdrawal, allowing tank to burn.

First Aid Requirements: see MSDS for full details. Contact Manufacture.

Environmental Assessment

Assess the following Conditions

Ambient Temperatures:

Precipitation (%):

Sunrise (time)/ Sunset (time):

Slope or ground contour (% gradient):

Porous Soil (sand/ cobble):

Dense Soil (clay/ bedrock):

Ground cover (foliage/ peat/ marsh / snow):

Assess Distance to Water Body

Into Water Body:

<5m:

5-15m:

>15m:

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Identify the Water Body

Distance Marker (km #):

Name of nearby water bodies:

Fisheries assessment reports:

Distance to other tributaries:

Effects of Product into Water

Environmental effects: On Water: Jet fuel readily evaporates. In rough water more product will dissolve into the water column. Microorganisms will typically breakdown the dissolved components further. Components that bind to sediment may stay there for a long time.

Aquatic Eco-toxicity: toxic to aquatic life

Toxicity: Immediately acute toxic to aquatic life with potentially long lasting effects

Large spills: Will create a toxic plume in the water column and travel downstream

Small spills: Typically demonstrates moderate acute toxicity to aquatic organisms

Toxicity to fish is expected between concentrations of 18-25mg/L

Toxicity to invertebrates are expected between concentrations of 1.4-21mg/L

Specific Properties: Dispersal – Jet fuel will continue to disperse
Dissolves / solubility – Jet fuel will dissolve (negligibly) depending on ambient conditions of environment
Evaporation – Readily evaporates
Emulsification – Depends on surface water conditions to produce a milky white water/oil mixture.

Spill Response: Assess, Contain, Recover & Dispose. Refer to specific guidelines.

Containment Techniques: All containment should be completed before product reaches the collection area. Once product arrives, evacuate the collection area. Consider using: Tarp Containment; Containment Boom; Sandbag Diversion; Culvert Block; Sorbent Boom for Skimming

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Recovery: Due to high volatility it is safer to allow product to evaporate. Clean up and collection should only be considered if appropriate vapor monitors can determine if it is safe to approach containment area.

Effects of Product on Air

Spill to open environment (no fire): Vapors are heavier than air and may collect in low-lying areas. Vapors in contact with a heat source may ignite and flash back to the source. Inhalation may cause lung irritation.

Indirect Photo-degradation: The reaction of Jet Fuel (kerosene based) with light and atmospheric oxygen produces a half-life of 0.2 to 1.5 days

Effects of Product on Land

Effects on Land: Jet fuel will migrate quickly through soil and result in soil contamination. Assess the soil characteristics for porosity. Jet fuel will readily biodegrade in soil. Microorganisms will effectively breakdown contaminated soil if actively treated. Evaporation will also occur during the mixing (aeration) process

Small Spills (land): Assess, Contain, Recover & Dispose. Refer to specific guidelines.
Considered <100L
Consider on-site treatment if not adjacent to water body

Large Spills (land): Assess, Contain, Recover & Dispose. Refer to specific guidelines.

Containment: Recovery ditch, pits and sumps
Interceptor trench

Recovery: May not be possible due to flammability of product

Freezing Temperatures: Jet fuel will saturate snow and ice

Biodegradation: With adequate treatment (aeration/mixing, nutrients and microorganisms) a 50% reduction can be achieved in 28days