MATERIAL SAFETY DATA SHEET

Naphthalene, Molten

PRODUCT IDENTIFICATION

Chemical Name: Naphthalene
Chemical Family: Aromatic hydrocarbon
Trade Name: 78°, 79°, 80° Naphthalene
Synonyms: Naphthaline, Naphthene

Manufacturer/Distributor: Advanced Aromatics, L.P. 5501 Baker Road Baytown, TX 77520

EMERGENCY CONTACT: (281) 424-1255 24 hour number: (281) 424-1255 Chemtrec: (800) 424-9300

HAZARDOUS COMPONENTS

The following chemical components have been determined to be hazardous under OSHA’s Hazard Communication Std. 29 CFR 1910.1200, and are listed in Table Z-1, Z-2, and/or Z-3 1910.1000 (Toxic and Hazardous Substances).

<table>
<thead>
<tr>
<th>CAS No.</th>
<th>Material or Component</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>91-20-3</td>
<td>Naphthalene</td>
<td>97-100%</td>
</tr>
</tbody>
</table>

PHYSICAL DATA (TYPICAL)

Specific Gravity (Water = 1): 0.975 @ 185°F  Boiling Point: 424°F
Vapor Density (Air=1): 4.4  Freezing Point: 174°F
Vapor Pressure (PSIA): 0.193 @ 190°F  Evaporation Rate (Butyl Acetate =1):<1.0
Solubility In Water: Negligible  Viscosity: 0.85cp @ 194°F

Physical Description: Amber to clear liquid in molten state, with aromatic odor.

FIRE AND EXPLOSION DATA

Flash Point: 174°F (Closed Cup)
Flammable Limits in Air % by Volume: Lower: 0.9  Upper: 5.9
Extinguishing Media: Use carbon dioxide or dry chemical.
Special Fire Fighting Procedures: Flammable and toxic vapors given off in a fire. Wear complete personal protection equipment. SCBA required.
Unusual Fire and Explosion Hazard: Avoid direct contact of water or foam streams with molten naphthalene. This may cause violent frothing and spattering of molten material.

For "Disclaimer of Liability", see the statement on Page 6.
**REACTIVITY DATA**

**Stability:** Product is stable. Solid form volatilizes appreciably at room temperature.

**Conditions to Avoid:** Avoid direct water contact with molten naphthalene, as violent foaming and spattering may occur.

**Incompatibility:** Oxidizing agents, reacts violently with dinitrogen pentaoxide, CR0₃, and (aluminum chloride & Benoyl chloride.)

**Hazardous Polymerization:** Will not occur.

**Hazardous Decomposition Products When Heated:** Flammable vapors are emitted during sublimation of crystalline solids. Acrid smoke, irritating and toxic fumes of carbon monoxide and carbon dioxide.

**HMIS RATING**

<table>
<thead>
<tr>
<th>NFPA 704 Rating:</th>
<th>0 - Insignificant</th>
<th>1 - Slight</th>
<th>2 - Moderate</th>
<th>3 - High</th>
<th>4 – Extreme</th>
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<td></td>
<td></td>
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<tr>
<td>Personal Protection</td>
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</table>

**HEALTH HAZARD INFORMATION**

**Symptoms Of Exposure:**
Symptoms of exposure to this compound may include irritation of the skin, eyes, mucous membranes and respiratory tract, nausea and headache. Other symptoms may include vomiting, diaphoresis (profuse sweating), hematuria (blood in the urine), fever, hemolytic anemia, hepatic necrosis, convulsions, coma and dermatitis. It can also cause allergic skin reactions, tiredness, painful urination, jaundice, diarrhea, conjunctivitis, dark urine and kidney and liver damage. It can cause visual disturbances and anuria. It can also cause hemoglobinuria, lens opacities and corneal injury. It sometimes causes dizziness. Absorption into the body leads to the formation of methemoglobin, which in sufficient concentration causes cyanosis. Onset may be delayed 2-4 hours or longer. Exposure can result in renal tubular blockage and acute renal shutdown.

**Health Effects:**
- **ACUTE** – Thermal Burns on contact.
- **CHRONIC** - Toxic by inhalation or ingestion of solids. Harmful if absorbed through skin.

**Ingestion:** May cause nausea, dizziness.

**Skin:** Contact with molten Naphthalene will cause thermal burns. Prolonged exposure to vapors may irritate skin and mucous membranes.

**Inhalation:** Avoid breathing vapors, may cause headaches, or nausea. Irritant to upper respiratory tract.

**Eyes:** Vapors may cause eye irritation.

**Special Medical Conditions Aggravated by Exposure:** None known.

**Primary Route of Entry:** Inhalation and skin contact.

**Exposure Limits:**
- OSHA - 10ppm (50mg/m3) TWA for 8 hour workday, STEL = 15ppm (75mg/m3).
- NIOSH - 10ppm (50 mg/m3) TWA for 8 hour workday, STEL = 15ppm (75mg/m3)
- ACGIH - 10ppm (50mg/m3) TWA for 8 hour workday, STEL = 15ppm (75mg/m3).
- IDLH - 500ppm

**Carcinogen Status:** Not listed on (NTP) National Toxicology Program "Annual Report on Carcinogens", or (IARC) Intl. Agency for Research on Cancer "Monographs", and is not classified by OSHA as a carcinogen. NTP studies TR-410 and TR-500 show evidence of increased tumor growth in rodents.

For "Disclaimer of Liability", see the statement on Page 6.
Toxicity:
*NIOSH REGISTRY NUMBER: QJ0525000

*TOXICITY:

<table>
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<tr>
<th>Typ. Dose</th>
<th>mode</th>
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<th>units</th>
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<td>chd</td>
<td>100</td>
<td>mg/kg</td>
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<tr>
<td>LD50</td>
<td>ivn</td>
<td>mus</td>
<td>100</td>
<td>mg/kg</td>
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</tbody>
</table>

*SAX TOXICITY EVALUATION:

*CARCINOGENICITY:
Tumorigenic Data:
TDLo: scu-rat 3500 mg/kg/12W-I

*MUTATION DATA:

<table>
<thead>
<tr>
<th>test</th>
<th>lowest dose</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
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</tr>
<tr>
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</tbody>
</table>

*TERATOGENICITY:
Reproductive Effects Data:
TDLo: ipr-rat 5925 mg/kg (1-15D preg)
TDLo: orl-mus 2400 mg/kg (7-14D preg)

*OTHER TOXICITY DATA:
Skin and Eye Irritation Data:
Skin-rbt 495 mg open MLD
Eye-rbt 100 mg MLD
Review: Toxicology Review-2
Standards and Regulations: DOT-Hazard: ORM-A; Label: None
DOT-IMO: Flammable solid; Label: Flammable Solid

SOURCE: National Toxicology Program Repository (Radian Corporation, August 29, 1991) – Naphthalene

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**FIRST AID**

Ingestion: Do not induce vomiting. Contact physician.

Skin: Remove soiled clothing and wash with soap and water. Contact physician. Treat patient for thermal burns.

Inhalation: Remove to fresh air. If breathing irregular, administer oxygen.

Eyes: Flush eyes with water for at least 15 minutes. Contact physician.

**SPILL OR LEAK PROCEDURES**
In Case of a Transportation Accident, Contact CHEMTREC at 1-800/424-9300.

IN CASE OF SPILLS OR RELEASE: For small spills, clean up with non-sparking tools and return to container. Certain spills, or releases, of this product must be reported as a reportable quantity (RQ) of hazardous substance as per 40 CFR part 117. \textbf{RQ}=100 \text{ lbs.} of Naphthalene. Keep away from waterways.

Refer to DOT NORTH AMERICAN EMERGENCY RESPONSE GUIDEBOOK for handling information.

Waste Disposal Method: Adhere to all local, state, and federal regulations. See regulatory information below.

Disposal: If this product becomes a waste, it must be disposed of as required by applicable state and federal laws. Naphthalene is listed in 40 CFR 261, Subpart D (UI65).

### SPECIAL PROTECTION INFORMATION

Respiratory Protection: Have appropriate NIOSH approved respirator available for use in atmospheres above the permissible exposure limits. Organic cartridge respirator or SCBA's.

Gloves: Rubber or neoprene. Heat resistant to at least 300 °F.

Eyes: Chemical Goggles and Face Shield.

Ventilation: Use adequate ventilation to keep inhalation and flammable concentrations below their listed permissible exposure limits.

### SPECIAL PRECAUTIONS

Storage and Handling: Store in tightly closed properly labeled containers in a well-ventilated area away from fire hazards.

### TRANSPORTATION INFORMATION

The proper shipping name / hazard class may vary by packaging, properties, and mode of transportation.

Proper shipping names are:

**ALL TRANSPORTATION MODES:** Naphthalene, Molten

(Unless Specified Below) UN2304, 4.1 Flammable Solid, PG III

**AIR TRANSPORTATION:** Naphthalene, Crude or Refined

(IATA / ICAO) UN1334, 4.1 Flammable Solid, PG III

**MARINE TRANSPORTATION:** Naphthalene Molten (UN2304), Crude or Refined (UN1334)

(IMDG / IMO) 4.1 Flammable Solid, PG III

Molten on deck only, Crude or Refined on deck or under deck.

**UN/ID NO.:** UN2304

**HAZARD CLASS - PRIMARY:** 4.1-Flammable Solid

**PACKING GROUP:** III

**CARGO AIRCRAFT LIMIT:** Molten –Forbidden, Crude or Refined – 100kg

**PASSENGER AIRCRAFT LIMIT:** Molten – Forbidden, Crude or Refined – 25kg

**FLASH POINT:** 174°F

**TECHNICAL NAME(s):** Naphthalene

**RQ LBS. (Per pkg.):** 100 pounds

**RQ COMPONENTS (s):** Naphthalene

**MARINE POLLUTANT (s):** None
REGULATORY INFORMATION RIGHT-TO-KNOW PROGRAM

This product contains the following toxic chemicals subject to the reporting requirements of Section 313 of the Emergency Planning and Community Right-To-Know Act of 1986 and 40 CFR472.

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THE FOLLOWING FEDERAL REGULATIONS APPLY TO THIS PRODUCT:


Based on our hazard evaluation, the following components in this product are hazardous and the reasons are listed.

NAPHTHALENE - Eye irritant and causes skin burns.

NAPHTHALENE - OSHA - 10ppm (50mg/m3) TWA for 8 hour workday, STEL = 15ppm (75 mg/m3).

ACGIH - 10ppm (50mg/m3) TWA for 8 hour workday, STEL = 15ppm (75 mg/m3).

NIOSH - 10ppm (50mg/m3) TWA for 8 hour workday, STEL = 15ppm (75 mg/m3).

CERCLA:
This product contains naphthalene, a reportable quantity (RQ) substance. The RQ for Naphthalene is 100 lbs. If a spill or release contains 100 or more pounds of Naphthalene, it requires notification to the National Response Center, Washington D.C. (1-800-424-8802). There may also be state and local requirements to report spills.

SARA TITLE III:
Section 302 - This product does not contain any components regulated under SARA TITLE III, Section 302 (Extremely Hazardous Substance).

Section 311, 312 - (MSDS Information) 40 CFR 370, This product has been determined to be hazardous, and should be reported under the following EPA hazard categories:

--xx-- immediate (acute) health hazard
------- Delayed (chronic) health hazard
--xx-- Fire Hazard
------- Sudden release of pressure hazard
------- Reactive hazard

Under SARA Sections 311 and 312, the EPA has established threshold quantities for the reporting of hazardous chemicals. The current threshold are 500 pounds for the threshold planning quantity (TPQ), whichever is lower, for extremely hazardous substances and 10,000 pounds for all other hazardous chemicals.

Section 313 -This product contains the following component subject to regulation under SARA TITLE III, Section 313: Naphthalene

TOXIC SUBSTANCE CONTROL ACT (TSCA): Naphthalene (CAS 91-20-3) is on the TSCA Inventory.

RESOURCE CONSERVATION and RECOVERY ACT (RCRA): Naphthalene is subject to regulation under 40 CFR 261 40 CFR 261 Subpart D. The hazardous waste code for naphthalene is U165.

CLEAN WATER ACT (CWA): Naphthalene is subject to regulation under sections 307 and 311 of the CWA.

CLEAN AIR ACT (CAA): Naphthalene is a listed "Hazardous air pollutant (HAP)" under Section 112 of the CAA.

ALL INFORMATION ON THIS MSDS MUST BE INCLUDED IN ALL MSDS THAT ARE
This information is provided for the customers of Advanced Aromatics; however, it does not address in detail the use, storage or handling of the product. Users of the product, considering their use, storage or handling of the product, may need to develop additional procedures. The information should not be relied on to insure compliance by the customer with any federal, state or local legal requirements. Information provided herein, are not product specifications.