



ADVANCED FUEL SOLUTIONS, INC.

# Safety Data Sheet Heating Oil Plus mj2

## 1. Product and company identification

**Product name** : Heating Oil Plus mj2  
**Material uses** : Petrochemical industry: Fuel additive.  
**Internal code** : FS-000102  
**System code** : IFS0572  
**Supplier** : Advanced Fuel Solutions  
 1060 Osgood Street  
 North Andover  
 MA 01845

**Information contact** : 1-978-258-8360

### Emergency telephone number

In USA, Canada and North America, 24 hour / 7 day emergency information for our product is provided by the CHEMTREC® Emergency Call Center based in the USA

**Country information** : **Emergency telephone number**

USA, Canada, Puerto Rico, Virgin Islands : +1 800 424 9300

In case of difficulties, or for ships at sea : +1 703 527 3887

In Europe, Middle East, Africa, Asia Pacific and South America  
24 hour / 7 day emergency response for our products is provided by the NCEC CARECHEM 24 global network



**Country information** : **Emergency telephone number**    **Location**

South America ( all countries )	: +1 215 207 0061	Philadelphia USA
Brazil	: +55 113 711 9144	Brazil
Mexico	: +52 555 004 8763	Mexico
Europe ( all countries ) Middle East, Africa ( French, Portuguese, English )	: +44 (0) 1235 239 670	London, UK
Middle East, Africa ( Arabic, French, English )	: +44 (0) 1235 239 671	Lebanon
Asia Pacific ( all countries except China )	: +65 3158 1074	Singapore
China	: +86 10 5100 3039	Beijing China

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## Section 2. Hazards identification

**OSHA/HCS status** : This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200).

**Classification of the substance or mixture** : FLAMMABLE LIQUIDS - Category 3  
 SKIN CORROSION/IRRITATION - Category 1B  
 SERIOUS EYE DAMAGE/ EYE IRRITATION - Category 1  
 SKIN SENSITIZATION - Category 1  
 CARCINOGENICITY - Category 2  
 TOXIC TO REPRODUCTION (Fertility) - Category 1B  
 TOXIC TO REPRODUCTION (Unborn child) - Category 1B

### GHS label elements

#### Hazard pictograms



**Signal word** : Danger

**Hazard statements** : H226 - Flammable liquid and vapor.  
 H314 - Causes severe skin burns and eye damage.  
 H317 - May cause an allergic skin reaction.  
 H360 - May damage fertility or the unborn child.  
 H351 - Suspected of causing cancer.

### Precautionary statements

#### Prevention

: P201 - Obtain special instructions before use.  
 P202 - Do not handle until all safety precautions have been read and understood.  
 P281 - Use personal protective equipment as required.  
 P280 - Wear protective gloves. Wear eye or face protection. Wear protective clothing.  
 P210 - Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.  
 P241 - Use explosion-proof electrical, ventilating, lighting and all material-handling equipment.  
 P242 - Use only non-sparking tools.  
 P243 - Take precautionary measures against static discharge.  
 P233 - Keep container tightly closed.  
 P261 - Avoid breathing vapor.  
 P264 - Wash hands thoroughly after handling.  
 P272 - Contaminated work clothing should not be allowed out of the workplace.

#### Response

: P308 + P313 - IF exposed or concerned: Get medical attention.  
 P304 + P340 + P310 - IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing. Immediately call a POISON CENTER or physician.  
 P301 + P310 + P330 + P331 - IF SWALLOWED: Immediately call a POISON CENTER or physician. Rinse mouth. Do NOT induce vomiting.  
 P303 + P361 + P353 + P363 + P310 - IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water or shower. Wash contaminated clothing before reuse. Immediately call a POISON CENTER or physician.  
 P302 + P352 - IF ON SKIN: Wash with plenty of soap and water.  
 P333 + P313 - If skin irritation or rash occurs: Get medical attention.  
 P305 + P351 + P338 + P310 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a POISON CENTER or physician.

#### Storage

: P405 - Store locked up.  
 P403 - Store in a well-ventilated place.  
 P235 - Keep cool.

#### Disposal

: P501 - Dispose of contents and container in accordance with all local, regional, national and international regulations.

## Section 2. Hazards identification

- Supplemental label elements** : Do not taste or swallow. Wash thoroughly after handling.
- Hazards not otherwise classified** : Causes digestive tract burns.
- Target organs** : Contains material which causes damage to the following organs: skin.  
Contains material which may cause damage to the following organs: blood, kidneys, liver, gastrointestinal tract, upper respiratory tract, central nervous system (CNS), eye, lens or cornea.

See toxicological information (Section 11)

## Section 3. Composition/information on ingredients

**Substance/mixture** : Mixture

Ingredient name	%	CAS number
Solvent naphtha (petroleum), light arom.	30 - 60	64742-95-6
N,N'-di-sec-butyl-p-phenylenediamine	9.99 - 14.99	101-96-2
Solvent naphtha (petroleum), heavy arom.	4.99 - 9.99	64742-94-5
phenol, 2,2'-[(1-methyl-1,2-ethanediy)]bis(nitriolomethylidyne)]bis-naphthalene	0.99 - 4.99	94-91-7
naphthalene	0.99 - 4.99	91-20-3
Proprietary	Proprietary	-

Any concentration shown as a range is to protect confidentiality or is due to batch variation.

There are no additional ingredients present which, within the current knowledge of the supplier and in the concentrations applicable, are classified as hazardous to health or the environment and hence require reporting in this section.

Occupational exposure limits, if available, are listed in Section 8.

## Section 4. First aid measures

### Description of necessary first aid measures

- Eye contact** : Get medical attention immediately. Call a poison center or physician. Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Continue to rinse for at least 10 minutes. Chemical burns must be treated promptly by a physician.
- Inhalation** : Get medical attention immediately. Call a poison center or physician. Remove victim to fresh air and keep at rest in a position comfortable for breathing. If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband. In case of inhalation of decomposition products in a fire, symptoms may be delayed. The exposed person may need to be kept under medical surveillance for 48 hours.
- Skin contact** : Get medical attention immediately. Call a poison center or physician. Wash with plenty of soap and water. Remove contaminated clothing and shoes. Wash contaminated clothing thoroughly with water before removing it, or wear gloves. Continue to rinse for at least 10 minutes. Chemical burns must be treated promptly by a physician. In the event of any complaints or symptoms, avoid further exposure. Wash clothing before reuse. Clean shoes thoroughly before reuse.

## Section 4. First aid measures

- Ingestion** : Get medical attention immediately. Call a poison center or physician. Wash out mouth with water. Remove dentures if any. Remove victim to fresh air and keep at rest in a position comfortable for breathing. If material has been swallowed and the exposed person is conscious, give small quantities of water to drink. Stop if the exposed person feels sick as vomiting may be dangerous. Do not induce vomiting unless directed to do so by medical personnel. If vomiting occurs, the head should be kept low so that vomit does not enter the lungs. Chemical burns must be treated promptly by a physician. Never give anything by mouth to an unconscious person. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.

### Most important symptoms/effects, acute and delayed

#### Potential acute health effects

- Eye contact** : Causes serious eye damage.
- Inhalation** : May give off gas, vapor or dust that is very irritating or corrosive to the respiratory system. Exposure to decomposition products may cause a health hazard. Serious effects may be delayed following exposure.
- Skin contact** : Causes severe burns. May cause an allergic skin reaction.
- Ingestion** : Corrosive to the digestive tract. Causes burns. May cause burns to mouth, throat and stomach.

#### Over-exposure signs/symptoms

- Eye contact** : Adverse symptoms may include the following:  
pain  
watering  
redness
- Inhalation** : Adverse symptoms may include the following:  
reduced fetal weight  
increase in fetal deaths  
skeletal malformations
- Skin contact** : Adverse symptoms may include the following:  
pain or irritation  
redness  
blistering may occur  
reduced fetal weight  
increase in fetal deaths  
skeletal malformations
- Ingestion** : Adverse symptoms may include the following:  
stomach pains  
reduced fetal weight  
increase in fetal deaths  
skeletal malformations

### Indication of immediate medical attention and special treatment needed, if necessary

- Notes to physician** : In case of inhalation of decomposition products in a fire, symptoms may be delayed. The exposed person may need to be kept under medical surveillance for 48 hours.
- Specific treatments** : No specific treatment.
- Protection of first-aiders** : No action shall be taken involving any personal risk or without suitable training. If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Wash contaminated clothing thoroughly with water before removing it, or wear gloves.

See toxicological information (Section 11)

## Section 5. Fire-fighting measures

### Extinguishing media

**Suitable extinguishing media** : Use dry chemical, CO<sub>2</sub>, water spray (fog) or foam.

**Unsuitable extinguishing media** : Do not use water jet.

**Specific hazards arising from the chemical** : Flammable liquid and vapor. In a fire or if heated, a pressure increase will occur and the container may burst, with the risk of a subsequent explosion. Runoff to sewer may create fire or explosion hazard.

**Hazardous thermal decomposition products** : Decomposition products may include the following materials:  
carbon dioxide  
carbon monoxide  
nitrogen oxides

**Special protective actions for fire-fighters** : Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training. Move containers from fire area if this can be done without risk. Use water spray to keep fire-exposed containers cool.

**Special protective equipment for fire-fighters** : Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.

**Flash point** : Closed cup: 52°C (125.6°F) [Pensky-Martens.]

## Section 6. Accidental release measures

### Personal precautions, protective equipment and emergency procedures

**For non-emergency personnel** : No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilled material. Shut off all ignition sources. No flares, smoking or flames in hazard area. Do not breathe vapor or mist. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment.

**For emergency responders** : If specialised clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials. See also the information in "For non-emergency personnel".

**Environmental precautions** : Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air).

### Methods and materials for containment and cleaning up

**Small spill** : Stop leak if without risk. Move containers from spill area. Use spark-proof tools and explosion-proof equipment. Dilute with water and mop up if water-soluble. Alternatively, or if water-insoluble, absorb with an inert dry material and place in an appropriate waste disposal container. Dispose of via a licensed waste disposal contractor.

**Large spill** : Stop leak if without risk. Move containers from spill area. Use spark-proof tools and explosion-proof equipment. Approach release from upwind. Prevent entry into sewers, water courses, basements or confined areas. Wash spillages into an effluent treatment plant or proceed as follows. Contain and collect spillage with non-combustible, absorbent material e.g. sand, earth, vermiculite or diatomaceous earth and place in container for disposal according to local regulations (see Section 13). Dispose of via a licensed waste disposal contractor. Contaminated absorbent material may pose the same hazard as the spilled product. Note: see Section 1 for emergency contact information and Section 13 for waste disposal.



## Section 7. Handling and storage

### Precautions for safe handling

- Protective measures** : Put on appropriate personal protective equipment (see Section 8). Persons with a history of skin sensitization problems should not be employed in any process in which this product is used. Avoid exposure - obtain special instructions before use. Avoid exposure during pregnancy. Do not handle until all safety precautions have been read and understood. Do not get in eyes or on skin or clothing. Do not breathe vapor or mist. Do not ingest. Use only with adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Do not enter storage areas and confined spaces unless adequately ventilated. Keep in the original container or an approved alternative made from a compatible material, kept tightly closed when not in use. Store and use away from heat, sparks, open flame or any other ignition source. Use explosion-proof electrical (ventilating, lighting and material handling) equipment. Use only non-sparking tools. Take precautionary measures against electrostatic discharges. Empty containers retain product residue and can be hazardous. Do not reuse container.
- Advice on general occupational hygiene** : Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Remove contaminated clothing and protective equipment before entering eating areas. See also Section 8 for additional information on hygiene measures.
- Conditions for safe storage, including any incompatibilities** : Store in accordance with local regulations. Store in a segregated and approved area. Store in a dry, cool and well-ventilated area, away from incompatible materials (see Section 10). Store locked up. Eliminate all ignition sources. Separate from oxidizing materials. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabeled containers. Use appropriate containment to avoid environmental contamination.

## Section 8. Exposure controls/personal protection

### Control parameters

#### Occupational exposure limits

Ingredient name	Exposure limits
naphthalene	<p><b>ACGIH TLV (United States, 4/2014). Absorbed through skin.</b>            TWA: 10 ppm, 0 times per shift, 8 hours.            TWA: 52 mg/m<sup>3</sup>, 0 times per shift, 8 hours.</p> <p><b>OSHA PEL 1989 (United States, 3/1989).</b>            TWA: 10 ppm, 0 times per shift, 8 hours.            TWA: 50 mg/m<sup>3</sup>, 0 times per shift, 8 hours.            STEL: 15 ppm, 0 times per shift, 15 minutes.            STEL: 75 mg/m<sup>3</sup>, 0 times per shift, 15 minutes.</p> <p><b>NIOSH REL (United States, 10/2013).</b>            TWA: 10 ppm, 0 times per shift, 10 hours.            TWA: 50 mg/m<sup>3</sup>, 0 times per shift, 10 hours.            STEL: 15 ppm, 0 times per shift, 15 minutes.            STEL: 75 mg/m<sup>3</sup>, 0 times per shift, 15 minutes.</p> <p><b>OSHA PEL (United States, 2/2013).</b>            TWA: 10 ppm, 0 times per shift, 8 hours.            TWA: 50 mg/m<sup>3</sup>, 0 times per shift, 8 hours.</p>
Proprietary	<p><b>AIHA WEEL (United States, 10/2011). Absorbed through skin. Skin sensitizer.</b>            TWA: 5 mg/m<sup>3</sup> 8 hours.</p>

## Section 8. Exposure controls/personal protection

- Appropriate engineering controls** : Use only with adequate ventilation. Use process enclosures, local exhaust ventilation or other engineering controls to keep worker exposure to airborne contaminants below any recommended or statutory limits. The engineering controls also need to keep gas, vapor or dust concentrations below any lower explosive limits. Use explosion-proof ventilation equipment.
- Environmental exposure controls** : Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation. In some cases, fume scrubbers, filters or engineering modifications to the process equipment will be necessary to reduce emissions to acceptable levels.
- Individual protection measures**
- Hygiene measures** : Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Appropriate techniques should be used to remove potentially contaminated clothing. Contaminated work clothing should not be allowed out of the workplace. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.
- Eye/face protection** : Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists, gases or dusts. If contact is possible, the following protection should be worn, unless the assessment indicates a higher degree of protection: chemical splash goggles and/or face shield. If inhalation hazards exist, a full-face respirator may be required instead.
- Skin protection**
- Hand protection** : Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary. Considering the parameters specified by the glove manufacturer, check during use that the gloves are still retaining their protective properties. It should be noted that the time to breakthrough for any glove material may be different for different glove manufacturers. In the case of mixtures, consisting of several substances, the protection time of the gloves cannot be accurately estimated.
- Body protection** : Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product. When there is a risk of ignition from static electricity, wear anti-static protective clothing. For the greatest protection from static discharges, clothing should include anti-static overalls, boots and gloves.
- Other skin protection** : Appropriate footwear and any additional skin protection measures should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.
- Respiratory protection** : Use a properly fitted, air-purifying or supplied-air respirator complying with an approved standard if a risk assessment indicates this is necessary. Respirator selection must be based on known or anticipated exposure levels, the hazards of the product and the safe working limits of the selected respirator.

## Section 9. Physical and chemical properties

### Appearance

- Physical state** : Liquid.
- Color** : DarkRed.
- Odor** : Aromatic.
- Odor threshold** : Not available.
- pH** : Not available.
- Melting point** : Not available.
- Boiling point** : Lowest known value: 158.89 to 170°C (318 to 338°F)(Solvent naphtha (petroleum), light arom.). Weighted average: 181.22°C (358.2°F)
- Flash point** : Closed cup: 52°C (125.6°F) [Pensky-Martens.]

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## Section 9. Physical and chemical properties

<b>Evaporation rate</b>	: Highest known value: 0.3 (Solvent naphtha (petroleum), light arom.) Weighted average: 0.27 compared with butyl acetate
<b>Flammability (solid, gas)</b>	: Not available.
<b>Lower and upper explosive (flammable) limits</b>	: Greatest known range: Lower: 0.6% Upper: 7% (Solvent naphtha (petroleum), heavy arom.)
<b>Vapor pressure</b>	: Highest known value: 0.3 kPa (2.1 mm Hg) (at 20°C) (Solvent naphtha (petroleum), light arom.). Weighted average: 0.26 kPa (1.95 mm Hg) (at 20°C)
<b>Vapor density</b>	: Highest known value: 4.6 to 5.5 (Air = 1) (Solvent naphtha (petroleum), heavy arom.). Weighted average: 4.55 (Air = 1)
<b>Specific gravity</b>	: 0.907 [ASTM D 4052]
<b>Density</b>	: 7.57 lbs/gal
<b>Solubility</b>	: Insoluble in the following materials: cold water, hot water.
<b>Partition coefficient: n-octanol/water</b>	: Not available.
<b>Auto-ignition temperature</b>	: Lowest known value: 329°C (624.2°F) (N,N'-di-sec-butyl-p-phenylenediamine).
<b>Decomposition temperature</b>	: Not available.
<b>Viscosity</b>	: Not available.

## Section 10. Stability and reactivity

<b>Reactivity</b>	: No specific test data related to reactivity available for this product or its ingredients.
<b>Chemical stability</b>	: The product is stable.
<b>Possibility of hazardous reactions</b>	: Under normal conditions of storage and use, hazardous reactions will not occur.
<b>Conditions to avoid</b>	: Avoid all possible sources of ignition (spark or flame). Do not pressurize, cut, weld, braze, solder, drill, grind or expose containers to heat or sources of ignition.
<b>Incompatible materials</b>	: Reactive or incompatible with the following materials: oxidizing materials
<b>Hazardous decomposition products</b>	: Under normal conditions of storage and use, hazardous decomposition products should not be produced.

## Section 11. Toxicological information

### Information on toxicological effects

#### Acute toxicity

Product/ingredient name	Test	Species	Result	Dose
Solvent naphtha (petroleum), light arom. N,N'-di-sec-butyl-p-phenylenediamine	-	Rat	LD50 Oral	8400 mg/kg
		Guinea pig	LD50 Dermal	5000 mg/kg
Solvent naphtha (petroleum), heavy arom.	-	Rabbit	LD50 Dermal	2806 mg/kg
		Rat - Male, Female	LD50 Dermal	756 mg/kg
		Rat - Male, Female	LD50 Oral	271 mg/kg
		Rat	LC50 Inhalation Vapor	>590 mg/m <sup>3</sup>
phenol, 2,2'-[(1-methyl-1,2-ethanediy)]bis (nitrilomethylidyne)]bis-	-	Rabbit	LD50 Dermal	>2 mL/kg
		Rabbit	LD50 Dermal	2000 mg/kg
		Rat	LDLo Oral	5 mL/kg
		Rat	LC50 Inhalation Vapor	16000 ppm
		Rabbit	LD50 Dermal	12900 mg/kg

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## Section 11. Toxicological information

naphthalene	-	Rat	LD50 Oral	4560 mg/kg
	-	Rat	LC50 Inhalation Vapor	>340 mg/m <sup>3</sup>
	-	Rabbit	LD50 Dermal	>2000 mg/kg
	-	Rat	LD50 Dermal	>2500 mg/kg
Proprietary	-	Rat	LD50 Oral	490 mg/kg
	-	Rat	LD50 Dermal	1260 mg/kg
	-	Rat	LD50 Oral	2100 to 3990 mg/kg

### Potential chronic health effects

Product/ingredient name	Test	Species	Result	Dose
Proprietary	-	Rat	Sub-chronic LOAEL Oral	43 mg/kg
	-	Rabbit	Sub-chronic LOAEL Dermal	50 mg/kg

### Irritation/Corrosion

Product/ingredient name	Test	Species	Result
Solvent naphtha (petroleum), light arom.	-	Rabbit	Eyes - Mild irritant -
N,N'-di-sec-butyl-p-phenylenediamine	-	Rabbit	Eyes - Severe irritant -
	-	Rabbit	Skin - Severe irritant -
Solvent naphtha (petroleum), heavy arom.	-	Rabbit	Skin - Mild irritant -
	-	Mammal - species unspecified	Eyes - Mild irritant -
Proprietary	-	Rabbit	Eyes - Moderate irritant -
	-	Rabbit	Skin - Severe irritant -

### Sensitization

Product/ingredient name	Test	Species	Result
N,N'-di-sec-butyl-p-phenylenediamine	-	Guinea pig	Sensitizing -
Proprietary	-	Guinea pig	Sensitizing -

### Mutagenicity

Product/ingredient name	Test	Experiment	Result
Proprietary	-	Experiment: In vivo Subject: Mammalian-Animal	Negative

### Carcinogenicity

#### Classification

Product/ingredient name	OSHA	IARC	NTP
naphthalene	-	2B	Reasonably anticipated to be a human carcinogen.

### Reproductive toxicity

## Section 11. Toxicological information

Product/ingredient name	Test	Species	Result	Dose
Proprietary	-	Mammal - species unspecified	-	Oral: 970 NOAEL
	-	Mammal - species unspecified	-	Dermal: 161 NOAEL

### Teratogenicity

Not available.

### Specific target organ toxicity (single exposure)

Name	Category	Route of exposure	Target organs
Solvent naphtha (petroleum), heavy arom.	Category 3	Not applicable.	Narcotic effects

### Specific target organ toxicity (repeated exposure)

Not available.

### Aspiration hazard

Name	Result
Solvent naphtha (petroleum), light arom. Solvent naphtha (petroleum), heavy arom.	ASPIRATION HAZARD - Category 1 ASPIRATION HAZARD - Category 1

## Section 12. Ecological information

### Toxicity

Product/ingredient name	Result	Species	Exposure
N,N'-di-sec-butyl-p-phenylenediamine	Acute EC50 0.0958 mg/l	Algae	72 hours
	Acute EC50 0.939 mg/l	Algae	72 hours
	Acute EC50 0.54 mg/l	Daphnia	48 hours
	Acute LC50 0.13 mg/l	Fish	96 hours
	Chronic NOEC 0.0029 mg/l	Daphnia	21 days
	Chronic NOEC 0.0037 mg/l	Fish	41 days
Solvent naphtha (petroleum), heavy arom.	Acute EC50 1 to 3 mg/l	Algae	72 hours
	Acute EC50 3 to 10 mg/l	Daphnia	48 hours
	Acute LC50 2 to 5 mg/l	Fish	96 hours
phenol, 2,2'-[(1-methyl-1,2-ethanediyl)bis(nitriomethylidyne)]bis-naphthalene	Acute EC50 1.96 mg/l Fresh water Acute LC50 2350 µg/l Marine water	Daphnia - Daphnia magna Crustaceans - Palaemonetes pugio	48 hours 48 hours
Proprietary	Acute LC50 1.6 mg/l Acute EC50 6.8 mg/l Acute EC50 24.1 mg/l Acute LC50 420 mg/l Acute NOEC 0.5 mg/l	Fish Algae Daphnia Fish Algae	96 hours 72 hours 48 hours 96 hours -

### Persistence and degradability

Product/ingredient name	Test	Result
N,N'-di-sec-butyl-p-phenylenediamine	OECD 301C Ready Biodegradability - Modified MITI Test (I)	12 % - 28 days

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## Section 12. Ecological information

Product/ingredient name	Aquatic half-life	Photolysis	Biodegradability
N,N'-di-sec-butyl-p-phenylenediamine	Fresh water 9.6 days Fresh water 0.22 days Fresh water 0.0625 days	50%; < 28 day(s)	Not readily
Solvent naphtha (petroleum), heavy arom.	-	-	Inherent
Proprietary	-	-	Not readily






### Bioaccumulative potential

Product/ingredient name	LogP <sub>ow</sub>	BCF	Potential
Solvent naphtha (petroleum), light arom.	-	10 to 2500	high
N,N'-di-sec-butyl-p-phenylenediamine	3.5	99.42	low
Solvent naphtha (petroleum), heavy arom.	-	<100	low
naphthalene	3.3	>100	low
Proprietary	-3.16	-	low

## Section 13. Disposal considerations

The generation of waste should be avoided or minimized wherever possible. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Waste should not be disposed of untreated to the sewer unless fully compliant with the requirements of all authorities with jurisdiction. Waste packaging should be recycled. Incineration or landfill should only be considered when recycling is not feasible. This material and its container must be disposed of in a safe way. Care should be taken when handling emptied containers that have not been cleaned or rinsed out. Empty containers or liners may retain some product residues. Vapor from product residues may create a highly flammable or explosive atmosphere inside the container. Do not cut, weld or grind used containers unless they have been cleaned thoroughly internally. Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers.

## Section 14. Transport information

	DOT Classification	IMDG	IATA
<b>UN number</b>	NA1993	UN1993	UN1993
<b>UN proper shipping name</b>	Combustible liquid, n.o.s. (Solvent naphtha (petroleum), light arom.). Marine pollutant (Solvent naphtha (petroleum), light arom., N,N'-di-sec-butyl-p-phenylenediamine) RQ (naphthalene, xylene)	FLAMMABLE LIQUID, N.O.S. (Solvent naphtha (petroleum), light arom.). Marine pollutant (Solvent naphtha (petroleum), light arom., N,N'-di-sec-butyl-p-phenylenediamine)	Flammable liquid, n.o.s. (Solvent naphtha (petroleum), light arom.)
<b>Transport hazard class(es)</b>	Combustible liquid.  	3  	3 
<b>Packing group</b>	III	III	III
<b>Environmental hazards</b>	Yes.	Yes.	No.

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## Section 14. Transport information

<p><b>Additional information</b></p>	<p>Non-bulk packages (less than or equal to 119 gal) of combustible liquids, that are marine pollutants, are not regulated as hazardous materials in package sizes less than the product reportable quantity, unless transported by vessel.</p> <p>The marine pollutant mark is not required when transported on inland waterways in sizes of ≤5 L or ≤5 kg or by road, rail, or inland air in non-bulk sizes.</p> <p><b>Reportable quantity</b> 8928.6 lbs / 4053.6 kg [1180.6 gal / 4469.2 L] Package sizes shipped in quantities less than the product reportable quantity are not subject to the RQ (reportable quantity) transportation requirements.</p> <p><b>Limited quantity</b> Yes.</p> <p><b>Packaging instruction</b> <b>Passenger aircraft</b> Quantity limitation: 60 L</p> <p><b>Cargo aircraft</b> Quantity limitation: 220 L</p> <p><b>Special provisions</b> IB3,T1, T4, TP1</p>	<p>The marine pollutant mark is not required when transported in sizes of ≤5 L or ≤5 kg.</p> <p><b>Emergency schedules (EmS)</b> F-E, _S-E_</p> <p><b>Special provisions</b> 223, 274, 955</p>	<p>The environmentally hazardous substance mark may appear if required by other transportation regulations.</p> <p><b>Passenger and Cargo Aircraft</b> Quantity limitation: 60 L Packaging instructions: 355</p> <p><b>Cargo Aircraft Only</b>Quantity limitation: 220 L Packaging instructions: 366</p> <p><b>Limited Quantities - Passenger Aircraft</b>Quantity limitation: 10 L Packaging instructions: Y344</p> <p><b>Special provisions</b> A3</p>
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**Special precautions for user** : **Transport within user’s premises:** always transport in closed containers that are upright and secure. Ensure that persons transporting the product know what to do in the event of an accident or spillage.

## Section 15. Regulatory information

**U.S. Federal regulations** : **United States inventory (TSCA 8b):** All components are listed or exempted.  
**Clean Water Act (CWA) 307:** naphthalene; ethylbenzene; phenol

**Clean Air Act Section 112 (b) Hazardous Air Pollutants (HAPs)** : Listed

**SARA 302/304**

**Composition/information on ingredients**



## Section 15. Regulatory information

Name	%	EHS	SARA 302 TPQ		SARA 304 RQ	
			(lbs)	(gallons)	(lbs)	(gallons)
o-Cresol	0 - 0.09	Yes.	-	-	-	-
phenol	0 - 0.09	Yes.	-	-	-	-

### SARA 311/312

**Classification** : Fire hazard  
 Immediate (acute) health hazard  
 Delayed (chronic) health hazard

### Composition/information on ingredients

Name	%	Fire hazard	Sudden release of pressure	Reactive	Immediate (acute) health hazard	Delayed (chronic) health hazard
Solvent naphtha (petroleum), light arom.	30 - 60	Yes.	No.	No.	Yes.	No.
N,N'-di-sec-butyl-p-phenylenediamine	9.99 - 14.99	No.	No.	No.	Yes.	No.
Solvent naphtha (petroleum), heavy arom.	4.99 - 9.99	Yes.	No.	No.	Yes.	No.
phenol, 2,2'-[(1-methyl-1,2-ethanediy)]bis-	0.99 - 4.99	No.	No.	No.	Yes.	Yes.
nitrilomethylidene]]bis-naphthalene	0.99 - 4.99	No.	No.	No.	Yes.	Yes.
Proprietary	Proprietary	No.	No.	No.	Yes.	No.

### SARA 313

	Product name	CAS number	%
<b>Form R - Reporting requirements</b>	naphthalene	91-20-3	0.99 - 4.99
<b>Supplier notification</b>	naphthalene	91-20-3	0.99 - 4.99

SARA 313 notifications must not be detached from the SDS and any copying and redistribution of the SDS shall include copying and redistribution of the notice attached to copies of the SDS subsequently redistributed.

### State regulations

- Massachusetts** : The following components are listed: NAPHTHALENE; N,N'-DI-SEC-BUTYL-P-PHENYLENEDIAMINE
- New York** : The following components are listed: Naphthalene
- New Jersey** : The following components are listed: NAPHTHALENE; MOTH FLAKES
- Pennsylvania** : The following components are listed: NAPHTHALENE; 1,4-BENZENEDIAMINE, N,N'-BIS(1-METHYLPROPYL)-
- California Prop. 65** : **WARNING:** This product contains a chemical known to the State of California to cause cancer.

Ingredient name	Cancer	Reproductive	No significant risk level	Maximum acceptable dosage level	Contains : % or ppm
naphthalene	Yes.	No.	Yes.	No.	0.99 - 4.99
ethylbenzene	Yes.	No.	41 µg/day (ingestion) 54 µg/day (inhalation)	No.	<100ppm

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## Section 15. Regulatory information

### International lists

#### National inventory

Australia inventory (AICS)	: All components are listed or exempted.
Canada inventory	: All components are listed or exempted.
China inventory (IECSC)	: All components are listed or exempted.
Europe inventory	: All components are listed or exempted.
Japan inventory (ENCS)	: All components are listed or exempted.
New Zealand Inventory of Chemicals (NZIoC)	: All components are listed or exempted.
Philippines inventory (PICCS)	: All components are listed or exempted.
Korea inventory (KECI)	: All components are listed or exempted.
Taiwan inventory (TCSI)	: All components are listed or exempted.
United States inventory (TSCA 8b)	: All components are listed or exempted.

Our REACH (pre-) registrations DO NOT cover the following:

1. The manufacture of these products by our company outside the EU unless covered by the Only Representative provisions, and
2. The importation of these products into Europe by other companies. Re-importation by other companies is not covered by our (pre-) registrations

Customers and other third parties importing and/or re-importing our products into Europe will need either:

- Their own (pre-) registration for substances contained in the imported product, or constituent monomers (imported above 1 tonne per year and >2% by weight) in the case of imported polymers, or
- In the case of importation only, to make use of the "Only Representative" provisions, if available.

## Section 16. Other information

### Hazardous Material Information System (U.S.A.)

Health	*	3
Flammability		2
Physical hazards		0

Caution: HMIS® ratings are based on a 0-4 rating scale, with 0 representing minimal hazards or risks, and 4 representing significant hazards or risks. Although HMIS® ratings are not required on SDSs under 29 CFR 1910.1200, the preparer may choose to provide them. HMIS® ratings are to be used with a fully implemented HMIS® program. HMIS® is a registered mark of the National Paint & Coatings Association (NPCA). HMIS® materials may be purchased exclusively from J. J. Keller (800) 327-6868.

The customer is responsible for determining the PPE code for this material.

### National Fire Protection Association (U.S.A.)



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Copyright ©2001, National Fire Protection Association, Quincy, MA 02269. This warning system is intended to be interpreted and applied only by properly trained individuals to identify fire, health and reactivity hazards of chemicals. The user is referred to certain limited number of chemicals with recommended classifications in NFPA 49 and NFPA 325, which would be used as a guideline only. Whether the chemicals are classified by NFPA or not, anyone using the 704 systems to classify chemicals does so at their own risk.

### Classification according to Directive 67/548/EEC [DSD] or Classification according to Directive 1999/45/EC [DPD]

<b>Risk phrases</b>	: R10- Flammable. R40- Limited evidence of a carcinogenic effect. R60- May impair fertility. R61- May cause harm to the unborn child. R48/20/21- Also harmful: danger of serious damage to health by prolonged exposure through inhalation and in contact with skin. R34- Causes burns. R43- May cause sensitization by skin contact.
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## Section 16. Other information

### Safety phrases

R50/53- Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

: S53- Avoid exposure - obtain special instructions before use.

S26- In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.

S36/37/39- Wear suitable protective clothing, gloves and eye/face protection.

S45- In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).

S61- Avoid release to the environment. Refer to special instructions/safety data sheet.

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### Key to abbreviations

: ATE = Acute Toxicity Estimate  
BCF = Bioconcentration Factor  
GHS = Globally Harmonized System of Classification and Labelling of Chemicals  
IATA = International Air Transport Association  
IBC = Intermediate Bulk Container  
IMDG = International Maritime Dangerous Goods  
LogPow = logarithm of the octanol/water partition coefficient  
MARPOL 73/78 = International Convention for the Prevention of Pollution From Ships, 1973 as modified by the Protocol of 1978. ("Marpol" = marine pollution)  
UN = United Nations

▣ Indicates information that has changed from previously issued version.

### Notice to reader

To the best of our knowledge, the information contained herein is accurate. However, neither the above-named supplier, nor any of its subsidiaries, assumes any liability whatsoever for the accuracy or completeness of the information contained herein.

Final determination of suitability of any material is the sole responsibility of the user. All materials may present unknown hazards and should be used with caution. Although certain hazards are described herein, we cannot guarantee that these are the only hazards that exist.