

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, Inc. 85 Flagship Drive, Unit K 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



The main regional centres are listed here in Section 1.

Other local contact numbers for specific language support in Asia Pacific are listed in Section 16

Country information	: Emergency telephone number	Location
South America (all countries)	: +1 215 207 0061	Philadelphia USA
Brazil	: +55 11 3197 5891	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

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
 ACUTE TOXICITY (oral) - Category 4
 SKIN CORROSION - Category 1B
 SERIOUS EYE DAMAGE - 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.
 H302 - Harmful if swallowed.
 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.
 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.
 P270 - Do not eat, drink or smoke when using this product.
 P264 - Wash hands thoroughly after handling.
 P272 (OSHA) - Contaminated work clothing must not be allowed out of the workplace.

Response

: P308 + P313 - IF exposed or concerned: Get medical attention.
 P304 + P340 + P310 - IF INHALED: Remove person to fresh air and keep 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 + P363 - IF ON SKIN: Wash with plenty of soap and water. Wash contaminated clothing before reuse.
 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.

Section 2. Hazards identification

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.
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
N,N'-Disalicylidene-1,2-propanediamine	0.99 - 4.99	94-91-7
naphthalene	0.99 - 4.99	91-20-3
Proprietary	Proprietary	-
ethylbenzene	0.09 - 0.99	100-41-4

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

Additional information

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

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Section 4. First aid measures

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.

Ingestion : Get medical attention immediately. Call a poison center or physician. Remove dentures if any. Wash out mouth with water. Stop if the exposed person feels sick as vomiting may be dangerous. Remove victim to fresh air and keep at rest in a position comfortable for breathing. 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 : No known significant effects or critical hazards.

Skin contact : Causes severe burns. May cause an allergic skin reaction.

Ingestion : Harmful if swallowed. Corrosive to the digestive tract. Causes burns.

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.

Section 4. First aid measures

- 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, CO₂, 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 specialized 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.

Section 6. Accidental release measures

- 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>ACGIH TLV (United States, 3/2015). Absorbed through skin. TWA: 10 ppm, 0 times per shift, 8 hours. TWA: 52 mg/m³, 0 times per shift, 8 hours.</p> <p>OSHA PEL 1989 (United States, 3/1989). TWA: 10 ppm, 0 times per shift, 8 hours. TWA: 50 mg/m³, 0 times per shift, 8 hours. STEL: 15 ppm, 0 times per shift, 15 minutes. STEL: 75 mg/m³, 0 times per shift, 15 minutes.</p> <p>NIOSH REL (United States, 10/2013).</p>

Section 8. Exposure controls/personal protection

<p>Proprietary ethylbenzene</p>	<p>TWA: 10 ppm, 0 times per shift, 10 hours. TWA: 50 mg/m³, 0 times per shift, 10 hours. STEL: 15 ppm, 0 times per shift, 15 minutes. STEL: 75 mg/m³, 0 times per shift, 15 minutes. OSHA PEL (United States, 2/2013). TWA: 10 ppm, 0 times per shift, 8 hours. TWA: 50 mg/m³, 0 times per shift, 8 hours.</p> <p>AIHA WEEL (United States, 10/2011). Absorbed through skin. Skin sensitizer. TWA: 5 mg/m³ 8 hours. ACGIH TLV (United States, 3/2016). TWA: 20 ppm, 0 times per shift, 8 hours. OSHA PEL 1989 (United States, 3/1989). TWA: 100 ppm, 0 times per shift, 8 hours. TWA: 435 mg/m³, 0 times per shift, 8 hours. STEL: 125 ppm, 0 times per shift, 15 minutes. STEL: 545 mg/m³, 0 times per shift, 15 minutes. NIOSH REL (United States, 10/2013). TWA: 100 ppm, 0 times per shift, 10 hours. TWA: 435 mg/m³, 0 times per shift, 10 hours. STEL: 125 ppm, 0 times per shift, 15 minutes. STEL: 545 mg/m³, 0 times per shift, 15 minutes. OSHA PEL (United States, 6/2016). TWA: 100 ppm, 0 times per shift, 8 hours. TWA: 435 mg/m³, 0 times per shift, 8 hours.</p>
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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

Section 8. Exposure controls/personal 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** : Based on the hazard and potential for exposure, select a respirator that meets the appropriate standard or certification. Respirators must be used according to a respiratory protection program to ensure proper fitting, training, and other important aspects of use.

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

Section 9. Physical and chemical properties

Viscosity : Not available.

Aerosol product

Section 10. Stability and reactivity

Reactivity : No specific test data related to reactivity available for this product or its ingredients.

Chemical stability : The product is stable.

Possibility of hazardous reactions : Under normal conditions of storage and use, hazardous reactions will not occur.

Conditions to avoid : 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.

Incompatible materials : Reactive or incompatible with the following materials:
oxidizing materials

Hazardous decomposition products : 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 -
		Rabbit	LD50 Dermal	2806 mg/kg -
		Rat	LD50 Dermal	450 mg/kg -
		Rat - Male, Female	LD50 Dermal	756 mg/kg -
Solvent naphtha (petroleum), heavy arom.	-	Rat - Male, Female	LD50 Oral	271 mg/kg -
		Rat	LC50 Inhalation Vapor	>590 mg/ 4 hours m ³
		Rabbit	LD50 Dermal	>2 mL/kg -
		Rabbit	LD50 Dermal	2000 mg/kg -
N,N'-Disalicylidene-1,2-propanediamine	-	Rat	LDLo Oral	5 mL/kg -
		Rat	LD50 Oral	4560 mg/kg -
		Rat - Male, Female	LD50 Oral	1350 mg/kg -
		Rat - Male, Female	LD50 Oral	>2000 mg/ kg -
naphthalene	-	Rat	LC50 Inhalation Vapor	>340 mg/ 1 hours m ³
		Rabbit	LD50 Dermal	>2000 mg/ kg -
		Rat	LD50 Dermal	>2500 mg/ kg -
		Rat	LD50 Oral	490 mg/kg -

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Proprietary	-	Rat	LD50 Dermal	1260 mg/kg -
ethylbenzene	-	Rat	LD50 Oral	2100 to - 3990 mg/kg
	-	Mouse	LC50 Inhalation Vapor	35500 mg/ 2 hours m ³
	-	Rabbit	LC50 Inhalation Vapor	4000 ppm 4 hours
	-	Rabbit	LD50 Dermal	>5000 mg/ - kg

Potential chronic health effects

Product/ingredient name	Test	Species	Result	Dose
N,N'-Disalicylidene-1, 2-propanediamine	OECD 422 Combined Repeated Dose Toxicity Study with the Reproduction/Developmental Toxicity Screening Test	Rat - Male, Female	Sub-acute NOAEL Oral	75 mg/kg Local effects
	OECD 422 Combined Repeated Dose Toxicity Study with the Reproduction/Developmental Toxicity Screening Test	Rat - Male, Female	Sub-acute NOAEL Oral	250 mg/kg Systemic Effects
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 -
Solvent naphtha (petroleum), heavy arom.	-	Rabbit	Skin - Severe irritant -
	-	Rabbit	Skin - Mild irritant -
	-	Mammal - species unspecified	Eyes - Mild irritant -
N,N'-Disalicylidene-1, 2-propanediamine	OECD 404 Acute Dermal Irritation/Corrosion	Rabbit	Skin - Edema 0.53
Proprietary	-	Rabbit	Eyes - Cornea opacity 0
	-	Rabbit	Eyes - Moderate irritant -
ethylbenzene	-	Rabbit	Skin - Severe irritant -
	-	Rabbit	Eyes - Severe irritant -
	-	Rabbit	Skin - Mild irritant -

Sensitization

Product/ingredient name	Test	Species	Result
N,N'-di-sec-butyl-p-phenylenediamine	-	Guinea pig	Sensitizing -
N,N'-Disalicylidene-1, 2-propanediamine	Skin sensitization	Guinea pig	Sensitizing -
Proprietary	-	Guinea pig	Sensitizing -

Mutagenicity

Section 11. Toxicological information

Product/ingredient name	Test	Experiment	Result
N,N'-Disalicylidene-1,2-propanediamine	OECD 1452813 473 <i>In vitro</i> Mammalian Chromosomal Aberration Test	Experiment: In vitro Subject: Mammalian-Animal Metabolic activation: With and without	Positive
	OECD 40M0600/11M240 471 Bacterial Reverse Mutation Test	Experiment: In vitro Subject: Bacteria Metabolic activation: With and without	Negative
	OECD 1452813 476 <i>In vitro</i> Mammalian Cell Gene Mutation Test	Experiment: In vitro Subject: Mammalian-Animal Metabolic activation: With and without	Negative
	OECD 26M0600/11X505 474 Mammalian Erythrocyte Micronucleus Test	Experiment: In vivo Subject: Mammalian-Animal	Negative
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.
ethylbenzene	-	2B	-

Reproductive toxicity

Product/ingredient name	Test	Species	Result	Dose
N,N'-Disalicylidene-1,2-propanediamine	OECD 422 Combined Repeated Dose Toxicity Study with the Reproduction/Developmental Toxicity Screening Test	Rat - Male, Female	-	Oral: 75 mg/kg NOAEL P. and F1 generation
	-	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.	ASPIRATION HAZARD - Category 1
Solvent naphtha (petroleum), heavy arom.	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
Solvent naphtha (petroleum), heavy arom.	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
	Acute EC50 1 to 3 mg/l	Algae	72 hours
	Acute EC50 3 to 10 mg/l	Daphnia	48 hours
N,N'-Disalicylidene-1,2-propanediamine	Acute LC50 2 to 5 mg/l	Fish	96 hours
	Acute EC10 0.116 mg/l Measured Fresh water	Algae	72 hours
	Acute EC20 18 mg/l Nominal Fresh water	Algae	3 hours
	Acute EC50 4.5 mg/l Nominal Fresh water	Algae	3 hours
	Acute EC50 1.12 mg/l Measured Fresh water	Algae	72 hours
	Acute EC50 3.16 mg/l Measured Fresh water	Daphnia	48 hours
	Acute LC50 46 mg/l Fresh water	Fish	96 hours
	Acute NOEC 1.77 mg/l Measured Fresh water	Daphnia	48 hours
naphthalene	Acute EC50 1.96 mg/l Fresh water	Daphnia - Daphnia magna	48 hours
	Acute LC50 2350 µg/l Marine water	Crustaceans - Palaemonetes pugio	48 hours
Proprietary	Acute LC50 1.6 mg/l	Fish	96 hours
	Acute EC50 6.8 mg/l	Algae	72 hours
	Acute EC50 24.1 mg/l	Daphnia	48 hours
	Acute LC50 420 mg/l	Fish	96 hours
ethylbenzene	Acute NOEC 0.5 mg/l	Algae	-
	Acute EC50 4600 µg/l Fresh water	Algae - Pseudokirchneriella subcapitata	72 hours
	Acute EC50 3600 µg/l Fresh water	Algae - Pseudokirchneriella subcapitata	96 hours
	Acute EC50 7.2 mg/l	Algae	48 hours
	Acute EC50 2.93 mg/l	Daphnia	48 hours
	Acute LC50 4.2 mg/l	Fish	96 hours
	Chronic NOEC <1000 µg/l Fresh water	Algae - Pseudokirchneriella subcapitata	96 hours
Chronic NOEC 6800 µg/l Fresh water	Daphnia - Daphnia magna	48 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
N,N'-Disalicylidene-1,2-propanediamine	OECD 99/0321/26/1 301F Ready Biodegradability - Manometric Respirometry Test	70 % - Readily - 28 days

Section 12. Ecological information

Product/ingredient name	Aquatic half-life	Photolysis	Biodegradability
N,N'-di-sec-butyl-p-phenylenediamine	Fresh water 9.6 days, pH 4, 20°C (OECD 111) Fresh water 0.22 days, pH 7, 20°C (OECD 111) Fresh water 0.0625 days, pH 9, 20°C (OECD 111)	50%; < 28 day(s)	Not readily
Solvent naphtha (petroleum), heavy arom.	-	-	Inherent
Proprietary ethylbenzene	-	-	Not readily
			Readily

Bioaccumulative potential

Product/ingredient name	LogP _{ow}	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
N,N'-Disalicylidene-1,2-propanediamine	1.5	-	low
naphthalene	3.3	>100	low
Proprietary ethylbenzene	-3.16	-	low
	3.1	-	low


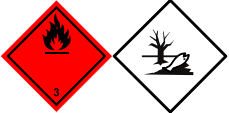

Section 13. Disposal considerations

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
UN number	NA1993	UN1993	UN1993
			Flammable liquid, n.o.s. (Solvent naphtha (petroleum), light arom.)

Section 14. Transport information

UN proper shipping name	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)	
Transport hazard class(es)	Combustible liquid. 	3 	3 
Packing group	III	III	III
Environmental hazards	Yes.	Yes.	Yes. The environmentally hazardous substance mark is not required.
Additional information	<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>This product is not regulated as a marine pollutant when transported on inland waterways in sizes of ≤5 L or ≤5 kg or by road, rail, or inland air in non-bulk sizes, provided the packagings meet the general provisions of §§ 173.24 and 173.24a.</p> <p>Reportable quantity 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>Limited quantity Yes.</p> <p>Packaging instruction Passenger aircraft Quantity limitation: 60 L</p>	<p>The marine pollutant mark is not required when transported in sizes of ≤5 L or ≤5 kg.</p> <p>Emergency schedules (EmS) F-E, _S-E_</p> <p>Special provisions 223, 274, 955</p>	<p>The environmentally hazardous substance mark may appear if required by other transportation regulations.</p> <p>Passenger and Cargo Aircraft Quantity limitation: 60 L Packaging instructions: 355 Cargo Aircraft Only Quantity limitation: 220 L Packaging instructions: 366 Limited Quantities - Passenger Aircraft Quantity limitation: 10 L Packaging instructions: Y344</p> <p>Special provisions A3</p>

Section 14. Transport information

	Cargo aircraft Quantity limitation: 220 L Special provisions IB3,T1, T4, TP1		
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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

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

SARA 302/304

Composition/information on ingredients

No products were found.

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.
N,N'-Disalicylidene-1,2-propanediamine	0.99 - 4.99	No.	No.	No.	Yes.	Yes.
naphthalene	0.99 - 4.99	No.	No.	No.	Yes.	Yes.
Proprietary	Proprietary	No.	No.	No.	Yes.	No.
ethylbenzene	0.09 - 0.99	Yes.	No.	No.	Yes.	Yes.

SARA 313

Section 15. Regulatory information

	Product name	CAS number	%
Form R - Reporting requirements	naphthalene	91-20-3	0.99 - 4.99
	ethylbenzene	100-41-4	0.09 - 0.99
Supplier notification	naphthalene	91-20-3	0.99 - 4.99
	ethylbenzene	100-41-4	0.09 - 0.99

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.	0.09 - 0.99

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)** : **Japan inventory (ENCS):** All components are listed or exempted.
- Japan inventory (ISHL):** Not determined.
- 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:

- The manufacture of these products by our company outside the EU unless covered by the Only Representative provisions, and
 - 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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History

Date of printing	: 2017-06-26
Date of issue/Date of revision	: 2017-06-26
Date of previous issue	: 2017-06-26
Version	: 2.05
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 = 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

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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.