

SAFETY DATA SHEET

Classified in accordance with 29 CFR 1910.1200

1. Identification

Product identifier: Gasoline Blendstock C9**Other means of identification****Common name(s),** C9+, mixed hydrocarbons, C9-200 (Corunna)**synonym(s):****SDS number:** NOVA-0020**Recommended use and restriction on use****Recommended use:** Gasoline blending or fuel products blending.**Restrictions on use:** All uses other than the identified.**Manufacturer/Importer/Supplier/Distributor Information****Manufacturer**

Company Name: NOVA Chemicals
Address: P.O. Box 2518, Station M
Calgary, Alberta, Canada T2P 5C6
Telephone: Product Information: 1-412-490-4063
SDS Information Email: msdsemail@novachem.com

Emergency telephone number:

1-800-561-6682, 1-403-314-8767 (NOVA Chemicals) (24 hours)

1-800-424-9300 (CHEMTREC-USA) (24 hours)

2. Hazard(s) identification

Hazard Classification**Physical Hazards**

Flammable liquids Category 3

Health Hazards

Acute toxicity (Oral) Category 4
Acute toxicity (Inhalation - vapor) Category 3
Skin Corrosion/Irritation Category 2
Serious Eye Damage/Eye Irritation Category 2A
Germ Cell Mutagenicity Category 1B
Carcinogenicity Category 1A
Toxic to reproduction Category 2
Specific Target Organ Toxicity -
Single Exposure Category 3
Specific Target Organ Toxicity -
Repeated Exposure Category 1
Aspiration Hazard Category 1

Environmental Hazards

Acute hazards to the aquatic
environment Category 1
Chronic hazards to the aquatic
environment Category 1

Label Elements

Hazard Symbol:**Signal Word:**

Danger

Hazard Statement:

Flammable liquid and vapor.
Toxic if inhaled.
Harmful if swallowed.
Causes skin irritation.
Causes serious eye irritation.
May cause genetic defects.
May cause cancer.
Suspected of damaging fertility or the unborn child.
May cause respiratory irritation.
Causes damage to organs through prolonged or repeated exposure.
(Auditory system)
(Blood)
May be fatal if swallowed and enters airways.
Very toxic to aquatic life with long lasting effects.

Precautionary Statements:**Prevention:**

Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. Keep container tightly closed. Ground and bond container and receiving equipment. Use explosion-proof electrical, ventilating and lighting equipment. Use non-sparking tools. Take action to prevent static discharges. Do not breathe dust or mists. Wash face, hands and any exposed skin thoroughly after handling. Do not eat, drink or smoke when using this product. Use only outdoors or in a well-ventilated area. Avoid release to the environment. Wear protective gloves/protective clothing/eye protection/face protection.

Response:

IF SWALLOWED: Immediately call a POISON CENTER/doctor. Rinse mouth. Do NOT induce vomiting. IF ON SKIN (or hair): Take off immediately all contaminated clothing and wash it before reuse. Rinse skin with water [or shower]. If skin irritation occurs: Get medical advice/attention. IF INHALED: Remove person to fresh air and keep comfortable for breathing. Call a POISON CENTER/doctor. IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists: Get medical advice/attention. IF exposed or concerned: Get medical advice/attention. In case of fire: Use dry chemical, foam, carbon dioxide (CO₂), water spray or fog to extinguish. Collect spillage.

Storage:

Store in a well-ventilated place. Keep container tightly closed. Store locked up. Keep cool.

Disposal:

Dispose of contents/ container to an approved facility in accordance with local, regional, national and international regulations.

Other hazards which do not result in GHS classification:

None.

3. Composition/information on ingredients**Mixtures**

| Chemical Identity | Common name and synonyms | CAS number | Content in percent (%)* |
|---|----------------------------|------------|-------------------------|
| 4,7-Methano-1H-indene, 3a,4,5,6,7,7a-hexahydro- | Dihydrodicyclopentadiene | 4488-57-7 | 40 - 60% |
| n-Undecane | Undecane | 1120-21-4 | 3 - 10% |
| Propylcyclopentane | Cyclopentane, propyl- | 2040-96-2 | 0 - 10% |
| 4,7-Methano-1H-indene, 3a,4,7,7a-tetrahydro- | Dicyclopentadiene, DCPD | 77-73-6 | 2 - 8% |
| Benzene, trimethyl- | Trimethylbenzene | 25551-13-7 | 0 - 6% |
| Naphthalene | Naphthalene | 91-20-3 | 0.7 - 5% |
| Benzene, propyl- | Propylbenzene | 103-65-1 | 0 - 3% |
| Benzene, ethenyl- | Styrene | 100-42-5 | 0 - 2% |
| Benzene | Benzol | 71-43-2 | 0 - 2% |
| 1,3-Cyclopentadiene | Cyclopentadiene | 542-92-7 | 0 - 1% |
| Benzene, 1,2-dimethyl- | o-Xylene | 95-47-6 | 0 - 1% |
| Benzene, (1-methylethyl)- | Isopropylbenzene (Cumene) | 98-82-8 | 0 - 1% |
| Benzene, 1-methyl-2-propyl- | 1-Methyl-2-propylbenzene | 1074-17-5 | 0 - 1% |
| Benzene, 1,3,5-trimethyl- | Mesitylene | 108-67-8 | 0 - 1% |
| Benzene, ethyl- | Ethylbenzene, Phenylethane | 100-41-4 | 0 - 0.9% |
| Benzene, butyl- | 1-Phenylbutane | 104-51-8 | 0 - 0.8% |
| Butane, 2,2,3-trimethyl- | Butane, 2,3,3-trimethyl- | 464-06-2 | 0 - 0.2% |
| Toluene | Methylbenzene | 108-88-3 | 0 - 0.2% |
| Pentane, 2,3,4-trimethyl- | 2,3,4-Trimethylpentane | 565-75-3 | 0 - 0.15% |
| Hexane, 3-methyl- | 3-Methylhexane | 589-34-4 | 0 - 0.1% |
| Hexane | n-Hexane | 110-54-3 | 0 - 0.1% |
| Nonane | n-Nonane | 111-84-2 | 0 - 0.1% |

* All concentrations are percent by weight.

Additional Information:

This product has been assigned a CAS # of 68553-14-0 – Hydrocarbons, C8-11. This product is considered hazardous by the OSHA Hazard Communication Standard, (29 CFR 1910.1200).

4. First-aid measures**Inhalation:**

IF INHALED: Remove person to fresh air and keep comfortable for breathing. Call a POISON CENTER/doctor.

Ingestion:

IF SWALLOWED: Immediately call a POISON CENTER/doctor. Rinse mouth. Do NOT induce vomiting.

Skin Contact:

IF ON SKIN (or hair): Take off immediately all contaminated clothing and wash it before reuse. Rinse skin with water [or shower]. If skin irritation occurs: Get medical advice/attention.

Eye contact:

IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists: Get medical advice/attention.

Most important symptoms/effects, acute and delayed**Symptoms:**

Skin irritation. Eye irritation. Respiratory irritation.

Indication of immediate medical attention and special treatment needed

Treatment: For more detailed medical emergency support information, call 1-800-561-6682 or 1-403-314-8767 (24 hours, NOVA Chemicals Emergency Response). Ensure thorough eye and skin decontamination. Treat unconsciousness, nausea, hypotension, seizures and cardiac arrhythmias in the conventional manner. Aspiration of this product during induced emesis can result in lung injury. If evacuation of stomach contents is considered necessary, use the method least likely to cause aspiration, such as gastric lavage after protecting the airway.

5. Fire-fighting measures

General Fire Hazards: Flammable liquid and vapor. Vapors are heavier than air and may travel to a source of ignition and flash back. If tank, rail car or tank truck is involved in fire, ISOLATE for 800 meters (1/2 mile) in all directions; also, consider initial evacuation for 800 meters (1/2 mile) in all directions. Vapors may form explosive mixture with air. Keep containers away from source of heat or fire. This product may be a static accumulator which can form an ignitable vapor-air mixture in a storage tank.

Suitable (and unsuitable) extinguishing media

Suitable extinguishing media: Use dry chemical, foam, carbon dioxide (CO₂), water spray or fog to extinguish. Use water to cool fire-exposed containers and to protect personnel.

Unsuitable extinguishing media: Water spray may be an ineffective extinguishing medium, and may actually spread flames.

Specific hazards arising from the chemical: Upon combustion, this product emits carbon monoxide, carbon dioxide, low molecular weight hydrocarbons.

Special protective equipment and precautions for fire-fighters

Special fire-fighting procedures: Keep upwind. Keep unauthorized personnel away. Move containers from fire area if you can do so without risk. Fight fire from maximum distance or use unmanned holders or monitor nozzles. Immediately withdraw in case of fire and container venting or heat discoloration of a container. Avoid inhaling any smoke and combustion materials. Remove and isolate contaminated clothing and shoes. Cool containers with flooding quantities of water until well after the fire is out. Prevent runoff from fire control or dilution from entering streams, sewers, or drinking water supply. Reference Emergency Response Guidebook No. 128 for additional details and instructions.

Special protective equipment for fire-fighters: Firefighters must use standard protective equipment including flame retardant coat, helmet with face shield, gloves, rubber boots, and in enclosed spaces, SCBA.

6. Accidental release measures

Personal precautions, protective equipment and emergency procedures: Isolate area. Keep unauthorized personnel away. Alert stand-by emergency and fire-fighting personnel. Monitor surrounding area for buildup of flammable concentrations in air.

Methods and material for containment and cleaning up: Wear appropriate personal protective equipment. Do not touch or walk through spilled material. In case of leakage, eliminate all ignition sources. As an immediate precautionary measure, isolate spill or leak area for at least 50 meters (164 feet) in all directions. Keep upwind. Keep out of low areas. Stop leak if safe to do so. Contain discharge by booming on water or

diking on ground. Prevent runoff from fire control or dilution from entering streams, sewers, or drinking water supply.

Small Spills: Remove liquid material with non-sparking approved pumps, skimmers or vacuum equipment. Absorb with earth, sand or other non-combustible material and transfer to containers for later disposal. Use non-sparking tools.

Large Spills: Consider downwind evacuation for 300 meters (1000 feet). A vapor-suppressing foam may be used to reduce vapors. Remove pooled liquid material with approved, non-sparking pumps, skimmers or vacuum equipment. Absorb or cover with dry earth, sand or other non-combustible material and transfer to containers. Soil remediation may be required.

7. Handling and storage

Precautions for safe handling:

Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. Keep container tightly closed. Ground and bond container and receiving equipment. Use explosion-proof electrical, ventilating and lighting equipment. Use non-sparking tools. Take action to prevent static discharges. These alone may be insufficient to remove static electricity. For additional information on equipment bonding and grounding, refer to the American Petroleum Institute (API) Recommended Practice 2003, "Protection Against Ignitions Arising out of Static, Lightning, and Stray Currents" or National Fire Protection Association (NFPA) 77, "Recommended Practice on Static Electricity". Take special precautions when cold cutting or breaking into lines, or when cleaning and disposing of empty containers. Do not breathe dust or mists. Avoid contact with skin and eyes. Keep away from incompatible materials such as oxidizing agents and acids. Wash face, hands and any exposed skin thoroughly after handling. Do not eat, drink or smoke when using this product. Use only outdoors or in a well-ventilated area. Avoid release to the environment. Wear protective gloves/protective clothing/eye protection/face protection. In case of inadequate ventilation, use respiratory protection.

Conditions for safe storage, including any incompatibilities:

Storage area should be clearly identified, well-illuminated and clear of obstruction. Store in a well-ventilated place. Keep container tightly closed. Store locked up. Only allow access to authorized persons. Store and handle in properly designed pressure vessels and equipment. Store and use away from heat, sparks, open flame, or any other ignition source. Use non-sparking ventilation systems, approved explosion-proof equipment, and intrinsically safe electrical systems. Have appropriate extinguishing capability in storage area (e.g. sprinkler system, portable fire extinguishers) and flammable gas detectors. Keep absorbents for leaks and spills readily available. Consider use of floating roof or nitrogen blanketed tanks or where venting to atmosphere is permissible, equip storage tank vents with flame arrestors. Inspect vents during winter conditions for vapor ice buildup. Storage tanks should be above ground and diked to hold entire contents. Store away from incompatible materials. Store according to applicable regulations and standards for flammable materials.

8. Exposure controls/personal protection

Control Parameters

Occupational Exposure Limits

| Chemical Identity | Type | Exposure Limit Values | Source |
|---|------|-----------------------|--|
| 4,7-Methano-1H-indene, 3a,4,7,7a-tetrahydro- | STEL | 1 ppm | US. ACGIH Threshold Limit Values, as amended |

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|---------------------|-----------|---------|-----------|--|
| | TWA | 0.5 ppm | | US. ACGIH Threshold Limit Values, as amended |
| | REL | 5 ppm | 30 mg/m3 | US. NIOSH: Pocket Guide to Chemical Hazards, as amended |
| | TWA | 5 ppm | 30 mg/m3 | US. OSHA Table Z-1-A (29 CFR 1910.1000), as amended |
| Benzene, trimethyl- | TWA | 25 ppm | | US. ACGIH Threshold Limit Values, as amended |
| | REL | 25 ppm | 125 mg/m3 | US. NIOSH: Pocket Guide to Chemical Hazards, as amended |
| | TWA | 25 ppm | 125 mg/m3 | US. OSHA Table Z-1-A (29 CFR 1910.1000), as amended |
| Naphthalene | TWA | 10 ppm | | US. ACGIH Threshold Limit Values, as amended |
| | REL | 10 ppm | 50 mg/m3 | US. NIOSH: Pocket Guide to Chemical Hazards, as amended |
| | STEL | 15 ppm | 75 mg/m3 | US. NIOSH: Pocket Guide to Chemical Hazards, as amended |
| | IDLH | 250 ppm | | US. NIOSH. Immediately Dangerous to Life or Health (IDLH) Values, as amended |
| | PEL | 10 ppm | 50 mg/m3 | US. OSHA Table Z-1 Limits for Air Contaminants (29 CFR 1910.1000), as amended |
| | TWA | 10 ppm | 50 mg/m3 | US. OSHA Table Z-1-A (29 CFR 1910.1000), as amended |
| | STEL | 15 ppm | 75 mg/m3 | US. OSHA Table Z-1-A (29 CFR 1910.1000), as amended |
| Benzene, ethenyl- | REL | 50 ppm | 215 mg/m3 | US. NIOSH: Pocket Guide to Chemical Hazards, as amended |
| | STEL | 100 ppm | 425 mg/m3 | US. NIOSH: Pocket Guide to Chemical Hazards, as amended |
| | TWA | 50 ppm | 215 mg/m3 | US. OSHA Table Z-1-A (29 CFR 1910.1000), as amended |
| | STEL | 100 ppm | 425 mg/m3 | US. OSHA Table Z-1-A (29 CFR 1910.1000), as amended |
| | TWA | 100 ppm | | US. OSHA Table Z-2 (29 CFR 1910.1000), as amended |
| | Ceiling | 200 ppm | | US. OSHA Table Z-2 (29 CFR 1910.1000), as amended |
| | MAX. CONC | 600 ppm | | US. OSHA Table Z-2 (29 CFR 1910.1000), as amended |
| | IDLH | 700 ppm | | US. NIOSH. Immediately Dangerous to Life or Health (IDLH) Values, as amended |
| | STEL | 20 ppm | | US. ACGIH Threshold Limit Values, as amended |
| | TWA | 10 ppm | | US. ACGIH Threshold Limit Values, as amended |
| Benzene | STEL | 2.5 ppm | | US. ACGIH Threshold Limit Values, as amended |
| | TWA | 0.5 ppm | | US. ACGIH Threshold Limit Values, as amended |
| | REL | 0.1 ppm | | US. NIOSH: Pocket Guide to Chemical Hazards, as amended |
| | STEL | 1 ppm | | US. NIOSH: Pocket Guide to Chemical Hazards, as amended |
| | IDLH | 500 ppm | | US. NIOSH. Immediately Dangerous to Life or Health (IDLH) Values, as amended |
| | TWA | 1 ppm | | US. OSHA Specifically Regulated Substances (29 CFR 1910.1001-1053), as amended |
| | STEL | 5 ppm | | US. OSHA Specifically Regulated Substances (29 CFR 1910.1001-1053), as amended |
| | OSHA_ACT | 0.5 ppm | | US. OSHA Specifically Regulated Substances (29 CFR 1910.1001-1053), as amended |
| | TWA | 1 ppm | | US. OSHA Table Z-1-A (29 CFR 1910.1000), as amended |
| | STEL | 5 ppm | | US. OSHA Table Z-1-A (29 CFR 1910.1000), as amended |
| | Ceiling | 25 ppm | | US. OSHA Table Z-2 (29 CFR 1910.1000), as amended |
| | TWA | 10 ppm | | US. OSHA Table Z-2 (29 CFR 1910.1000), as amended |
| | MAX. CONC | 50 ppm | | US. OSHA Table Z-2 (29 CFR 1910.1000), as amended |
| 1,3-Cyclopentadiene | STEL | 1 ppm | | US. ACGIH Threshold Limit Values, as amended |
| | TWA | 0.5 ppm | | US. ACGIH Threshold Limit Values, as amended |

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|---------------------------|------|---------|-------------|--|
| | REL | 75 ppm | 200 mg/m3 | US. NIOSH: Pocket Guide to Chemical Hazards, as amended |
| | IDLH | 750 ppm | | US. NIOSH. Immediately Dangerous to Life or Health (IDLH) Values, as amended |
| | PEL | 75 ppm | 200 mg/m3 | US. OSHA Table Z-1 Limits for Air Contaminants (29 CFR 1910.1000), as amended |
| | TWA | 75 ppm | 200 mg/m3 | US. OSHA Table Z-1-A (29 CFR 1910.1000), as amended |
| Benzene, 1,2-dimethyl- | STEL | 150 ppm | | US. ACGIH Threshold Limit Values, as amended |
| | TWA | 100 ppm | | US. ACGIH Threshold Limit Values, as amended |
| | REL | 100 ppm | 435 mg/m3 | US. NIOSH: Pocket Guide to Chemical Hazards, as amended |
| | STEL | 150 ppm | 655 mg/m3 | US. NIOSH: Pocket Guide to Chemical Hazards, as amended |
| | IDLH | 900 ppm | | US. NIOSH. Immediately Dangerous to Life or Health (IDLH) Values, as amended |
| | PEL | 100 ppm | 435 mg/m3 | US. OSHA Table Z-1 Limits for Air Contaminants (29 CFR 1910.1000), as amended |
| | STEL | 150 ppm | 655 mg/m3 | US. OSHA Table Z-1-A (29 CFR 1910.1000), as amended |
| | TWA | 100 ppm | 435 mg/m3 | US. OSHA Table Z-1-A (29 CFR 1910.1000), as amended |
| Benzene, (1-methylethyl)- | REL | 50 ppm | 245 mg/m3 | US. NIOSH: Pocket Guide to Chemical Hazards, as amended |
| | PEL | 50 ppm | 245 mg/m3 | US. OSHA Table Z-1 Limits for Air Contaminants (29 CFR 1910.1000), as amended |
| | TWA | 50 ppm | 245 mg/m3 | US. OSHA Table Z-1-A (29 CFR 1910.1000), as amended |
| | IDLH | 900 ppm | | US. NIOSH. Immediately Dangerous to Life or Health (IDLH) Values, as amended |
| | TWA | 5 ppm | | US. ACGIH Threshold Limit Values, as amended |
| Benzene, 1,3,5-trimethyl- | TWA | 25 ppm | | US. ACGIH Threshold Limit Values, as amended |
| | TWA | 25 ppm | 125 mg/m3 | US. OSHA Table Z-1-A (29 CFR 1910.1000), as amended |
| | REL | 25 ppm | 125 mg/m3 | US. NIOSH: Pocket Guide to Chemical Hazards, as amended |
| | TWA | 10 ppm | | US. ACGIH Notice of Intended Changes (NIC) to Threshold Limit Values, as amended |
| Benzene, ethyl- | TWA | 20 ppm | | US. ACGIH Threshold Limit Values, as amended |
| | REL | 100 ppm | 435 mg/m3 | US. NIOSH: Pocket Guide to Chemical Hazards, as amended |
| | STEL | 125 ppm | 545 mg/m3 | US. NIOSH: Pocket Guide to Chemical Hazards, as amended |
| | IDLH | 800 ppm | | US. NIOSH. Immediately Dangerous to Life or Health (IDLH) Values, as amended |
| | PEL | 100 ppm | 435 mg/m3 | US. OSHA Table Z-1 Limits for Air Contaminants (29 CFR 1910.1000), as amended |
| | TWA | 100 ppm | 435 mg/m3 | US. OSHA Table Z-1-A (29 CFR 1910.1000), as amended |
| | STEL | 125 ppm | 545 mg/m3 | US. OSHA Table Z-1-A (29 CFR 1910.1000), as amended |
| Butane, 2,2,3-trimethyl- | STEL | 500 ppm | | US. ACGIH Threshold Limit Values, as amended |
| | TWA | 400 ppm | | US. ACGIH Threshold Limit Values, as amended |
| | TWA | 400 ppm | 1,600 mg/m3 | US. OSHA Table Z-1-A (29 CFR 1910.1000), as amended |
| | STEL | 500 ppm | 2,000 mg/m3 | US. OSHA Table Z-1-A (29 CFR 1910.1000), as amended |
| Toluene | TWA | 20 ppm | | US. ACGIH Threshold Limit Values, as amended |
| | STEL | 150 ppm | 560 mg/m3 | US. NIOSH: Pocket Guide to Chemical Hazards, as amended |
| | REL | 100 ppm | 375 mg/m3 | US. NIOSH: Pocket Guide to Chemical Hazards, as amended |
| | IDLH | 500 ppm | | US. NIOSH. Immediately Dangerous to Life or Health (IDLH) Values, as amended |

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|---------------------------|-----------|-----------|-------------------------|---|
| | STEL | 150 ppm | 560 mg/m ³ | US. OSHA Table Z-1-A (29 CFR 1910.1000), as amended |
| | TWA | 100 ppm | 375 mg/m ³ | US. OSHA Table Z-1-A (29 CFR 1910.1000), as amended |
| | TWA | 200 ppm | | US. OSHA Table Z-2 (29 CFR 1910.1000), as amended |
| | MAX. CONC | 500 ppm | | US. OSHA Table Z-2 (29 CFR 1910.1000), as amended |
| | Ceiling | 300 ppm | | US. OSHA Table Z-2 (29 CFR 1910.1000), as amended |
| Pentane, 2,3,4-trimethyl- | Ceiling | 385 ppm | 1,800 mg/m ³ | US. NIOSH: Pocket Guide to Chemical Hazards, as amended |
| | REL | 75 ppm | 350 mg/m ³ | US. NIOSH: Pocket Guide to Chemical Hazards, as amended |
| | PEL | 500 ppm | 2,350 mg/m ³ | US. OSHA Table Z-1 Limits for Air Contaminants (29 CFR 1910.1000), as amended |
| | TWA | 300 ppm | 1,450 mg/m ³ | US. OSHA Table Z-1-A (29 CFR 1910.1000), as amended |
| | STEL | 375 ppm | 1,800 mg/m ³ | US. OSHA Table Z-1-A (29 CFR 1910.1000), as amended |
| | TWA | 300 ppm | | US. ACGIH Threshold Limit Values, as amended |
| | IDLH | 1,000 ppm | | US. NIOSH. Immediately Dangerous to Life or Health (IDLH) Values, as amended |
| Hexane, 3-methyl- | TWA | 400 ppm | 1,600 mg/m ³ | US. OSHA Table Z-1-A (29 CFR 1910.1000), as amended |
| | STEL | 500 ppm | 2,000 mg/m ³ | US. OSHA Table Z-1-A (29 CFR 1910.1000), as amended |
| | TWA | 400 ppm | | US. ACGIH Threshold Limit Values, as amended |
| | STEL | 500 ppm | | US. ACGIH Threshold Limit Values, as amended |
| Hexane | TWA | 50 ppm | | US. ACGIH Threshold Limit Values, as amended |
| | REL | 50 ppm | 180 mg/m ³ | US. NIOSH: Pocket Guide to Chemical Hazards, as amended |
| | IDLH | 1,100 ppm | | US. NIOSH. Immediately Dangerous to Life or Health (IDLH) Values, as amended |
| | PEL | 500 ppm | 1,800 mg/m ³ | US. OSHA Table Z-1 Limits for Air Contaminants (29 CFR 1910.1000), as amended |
| | TWA | 50 ppm | 180 mg/m ³ | US. OSHA Table Z-1-A (29 CFR 1910.1000), as amended |
| Nonane | REL | 200 ppm | 1,050 mg/m ³ | US. NIOSH: Pocket Guide to Chemical Hazards, as amended |
| | TWA | 200 ppm | 1,050 mg/m ³ | US. OSHA Table Z-1-A (29 CFR 1910.1000), as amended |
| | TWA | 200 ppm | | US. ACGIH Threshold Limit Values, as amended |

Biological Limit Values

| Chemical Identity | Exposure Limit Values | Source |
|---|--------------------------------|-----------|
| Benzene, ethenyl- (Mandelic acid plus phenylglyoxylic acid: Sampling time: End of shift.) | 400 mg/g (Creatinine in urine) | ACGIH BEI |
| Benzene, ethenyl- (styrene: Sampling time: End of shift.) | 40 µg/l (Urine) | ACGIH BEI |
| Benzene (S-Phenylmercapturic acid: Sampling time: End of shift.) | 25 µg/g (Creatinine in urine) | ACGIH BEI |
| Benzene (t,t-Muconic acid: Sampling time: End of shift.) | 500 µg/g (Creatinine in urine) | ACGIH BEI |
| Benzene, 1,2-dimethyl- (Methylhippuric acids: Sampling time: End of shift.) | 1.5 g/g (Creatinine in urine) | ACGIH BEI |
| Benzene, ethyl- (Sum of mandelic acid and phenylglyoxylic acid: Sampling time: End of shift.) | 0.15 g/g (Creatinine in urine) | ACGIH BEI |
| Toluene (toluene: Sampling time: Prior to last shift of work week.) | 0.02 mg/l (Blood) | ACGIH BEI |

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|---|--------------------------------|-----------|
| Toluene (o-Cresol, with hydrolysis: Sampling time: End of shift.) | 0.3 mg/g (Creatinine in urine) | ACGIH BEI |
| Toluene (toluene: Sampling time: End of shift.) | 0.03 mg/l (Urine) | ACGIH BEI |
| Benzene, 1,3-dimethyl- (Methylhippuric acids: Sampling time: End of shift.) | 1.5 g/g (Creatinine in urine) | ACGIH BEI |
| Hexane (2,5-Hexanedion, without hydrolysis: Sampling time: End of shift.) | 0.5 mg/l (Urine) | ACGIH BEI |

Exposure guidelines

| Chemical Identity | Notations | Source |
|-------------------|--------------------------------|--|
| Naphthalene | Danger of cutaneous absorption | US. ACGIH Threshold Limit Values, as amended |
| Benzene | Danger of cutaneous absorption | US. ACGIH Threshold Limit Values, as amended |
| Hexane | Danger of cutaneous absorption | US. ACGIH Threshold Limit Values, as amended |

Appropriate Engineering Controls

Engineering methods to reduce hazardous exposure are preferred controls. Methods include mechanical ventilation (dilution and local exhaust) process or personal enclosure, remote and automated operation, control of process conditions, leak detection and repair systems, and other process modifications. Ensure all exhaust ventilation systems are discharged to outdoors, away from air intakes and ignition sources. Supply sufficient replacement air to make up for air removed by exhaust systems. Administrative (procedure) controls and use of personal protective equipment may also be required.

Individual protection measures, such as personal protective equipment

- General information:** Personal protective equipment (PPE) should not be considered a long-term solution to exposure control. Employer programs to properly select, fit, maintain and train employees to use equipment must accompany PPE. Consult a competent industrial hygiene resource, the PPE manufacturer's recommendation, and/or applicable regulations to determine hazard potential and ensure adequate protection.
- Eye/face protection:** Safety glasses. Chemical goggles are recommended if splashing is possible or to prevent eye irritation from vapors.
- Skin Protection**
- Hand Protection:** Chemical resistant gloves.
- Skin and Body Protection:** Wear appropriate clothing to prevent any possibility of skin contact. Wear work clothes with long sleeves and pants. If splashing or contact with liquid material is possible, consider the need for an impervious overcoat. Fire resistant (i.e., Nomex) or natural fiber clothing (i.e., cotton or wool) is recommended. Synthetic clothing can generate static electricity and is not recommended where a flammable vapor release may occur. Wear chemical-resistant safety footwear with good traction to prevent slipping. Static Dissipative (SD) rated footwear is also recommended.
- Respiratory Protection:** Appropriate NIOSH approved air-purifying respirator or self-contained breathing apparatus should be used. Air supplied breathing apparatus must be used when oxygen concentrations are low or if airborne concentrations exceed the limits of the air-purifying respirators.
- Hygiene measures:** Use effective control measures and PPE to maintain worker exposure to concentrations that are below these limits. Ensure that eyewash stations and safety showers are in close proximity to work locations.

9. Physical and chemical properties**Appearance**

| | |
|--|---|
| Physical state: | liquid |
| Form: | liquid |
| Color: | Amber |
| Odor: | Aromatic |
| Odor Threshold: | No data available. |
| pH: | not applicable |
| Melting point/freezing point: | < -60 °C (< -76 °F) |
| Initial boiling point and boiling range: | 75 - 225 °C (167 - 437 °F) |
| Flash Point: | 39 - 57 °C (102 - 135 °F) |
| Evaporation rate: | No data available. |
| Flammability (solid, gas): | not applicable |
| Upper/lower limit on flammability or explosive limits | |
| Flammability Limit - Upper (%): | 7 - 12 %(V) (estimated) |
| Flammability Limit - Lower (%): | 1 %(V) (estimated) |
| Vapor pressure: | 0.4 - 10.0 kPa (37.8 °C (100.0 °F)) (Reid Vapor Pressure) |
| Vapor density: | 3.5 (Air=1) |
| Density: | 900 - 980 kg/m ³ |
| Relative density: | 0.90 - 0.98 (Water=1) |
| Solubility(ies) | |
| Solubility in water: | negligible solubility |
| Solubility (other): | No data available. |
| Partition coefficient (n-octanol/water): | No data available. |
| Auto-ignition temperature: | 425 °C (797 °F) |
| Decomposition temperature: | No data available. |
| Viscosity: | 2.5 - 3 mm ² /s (40 °C (104 °F)), estimated |

10. Stability and reactivity

| | |
|--|--|
| Reactivity: | Contact with incompatible materials. Sources of ignition. Exposure to heat. |
| Chemical Stability: | Stable under normal storage conditions. Some components of the product become unstable at elevated temperatures and pressures. Antioxidant No. 22 is added to reduce 'gum' formation. Product is not sensitive to mechanical impact. |
| Possibility of hazardous reactions: | No data available. |
| Conditions to avoid: | Contact with incompatible materials. Sources of ignition. Exposure to heat. |
| Incompatible Materials: | Oxidizing agents, acids. |
| Hazardous Decomposition Products: | Upon decomposition, this product emits carbon monoxide, carbon dioxide, low molecular weight hydrocarbons. |

11. Toxicological information**Information on likely routes of exposure**

| | |
|--------------------|---|
| Inhalation: | Toxic if inhaled. Excessive inhalation may result in heartbeat irregularities, blood disorders and possibly cancer. Minute amounts aspirated into the lungs during ingestion or vomiting may cause severe pulmonary injury. |
|--------------------|---|

| | |
|----------------------|--|
| Ingestion: | Harmful if swallowed. Minute amounts aspirated into the lungs during ingestion or vomiting may cause severe pulmonary injury. Ingestion of this product may result in vomiting, nausea and abdominal pain. Ingestion may also cause blood disorders. |
| Skin Contact: | Causes skin irritation. |
| Eye contact: | Causes serious eye irritation. |

Symptoms related to the physical, chemical and toxicological characteristics

| | |
|----------------------|--|
| Inhalation: | Heartbeat irregularities, blood disorders, cancer, respiratory irritation. |
| Ingestion: | Vomiting, nausea and abdominal pain. |
| Skin Contact: | Skin irritation. |
| Eye contact: | Eye irritation. |

Information on toxicological effects

Acute toxicity (list all possible routes of exposure)

| | |
|-------------------|--|
| Oral | |
| Product: | ATEmix: 592.22 mg/kg |
| Dermal | |
| Product: | Not classified for acute toxicity based on available data. |
| Inhalation | |
| Product: | ATEmix: 5.48 mg/l Vapor |

Repeated dose toxicity

Product: No data available.

Components:

Benzene
LOAEL (Rat, Oral): 25 mg/kg (Target Organ(s): Blood)
LOAEL (Rat, Inhalation - vapor): 0.958 mg/l (Target Organ(s): Blood)
LOAEL (Human, Inhalation - vapor): 0.0018 mg/l (Target Organ(s): Blood)

Skin Corrosion/Irritation

Product: Causes skin irritation.

Serious Eye Damage/Eye Irritation

Product: Causes serious eye irritation.

Respiratory or Skin Sensitization

Product: No data available.

Components:

4,7-Methano-1H-indene, 3a,4,7,7a-tetrahydro-
Skin sensitization, Draize (Guinea Pig): Not a skin sensitizer.

Carcinogenicity

Product: May cause cancer.

IARC Monographs on the Evaluation of Carcinogenic Risks to Humans:

Naphthalene Overall evaluation: 2B. Possibly carcinogenic to humans.
Benzene, ethenyl- Overall evaluation: 2A. Probably carcinogenic to humans.
Benzene Overall evaluation: 1. Carcinogenic to humans.
Benzene, (1-methylethyl)- Overall evaluation: 2B. Possibly carcinogenic to humans.

Benzene, ethyl- Overall evaluation: 2B. Possibly carcinogenic to humans.

US. National Toxicology Program (NTP) Report on Carcinogens:

Naphthalene Reasonably Anticipated to be a Human Carcinogen.
Benzene, ethenyl- Reasonably Anticipated to be a Human Carcinogen.
Benzene Known To Be Human Carcinogen.
Benzene, (1-methylethyl)- Reasonably Anticipated to be a Human Carcinogen.

US. OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050), as amended:

Benzene Cancer

Germ Cell Mutagenicity**In vitro**

Product: May cause genetic defects.

In vivo

Product: May cause genetic defects.

Reproductive toxicity

Product: Suspected of damaging fertility or the unborn child.

Specific Target Organ Toxicity - Single Exposure

Product: May cause respiratory irritation.

Specific Target Organ Toxicity - Repeated Exposure

Product: Auditory system, Blood - Causes damage to organs through prolonged or repeated exposure.

Aspiration Hazard

Product: May be fatal if swallowed and enters airways.

Other effects: No data available.

12. Ecological information**Ecotoxicity:****Acute hazards to the aquatic environment:****Fish**

Product: Very toxic to aquatic life.

Aquatic Invertebrates

Product: Very toxic to aquatic life.

Toxicity to Aquatic Plants

Product: Very toxic to aquatic life.

Chronic hazards to the aquatic environment:**Fish**

Product: Very toxic to aquatic life with long lasting effects.

Aquatic Invertebrates

Product: Very toxic to aquatic life with long lasting effects.

Toxicity to Aquatic Plants

Product: Very toxic to aquatic life with long lasting effects.

Persistence and Degradability

Biodegradation
Product: No data available.

BOD/COD Ratio
Product: No data available.

Bioaccumulative potential

Bioconcentration Factor (BCF)
Product: No data available.

Components:
4,7-Methano-1H-indene, 3a,4,7,7a-tetrahydro-
Carp, Bioconcentration Factor (BCF): 58.9 - 384

Benzene, 1,2-dimethyl- Bioconcentration Factor (BCF): 25.9

Partition Coefficient n-octanol / water (log Kow)

Product: No data available.

Components:
4,7-Methano-1H-indene, 3a,4,7,7a-tetrahydro- 2.78

Naphthalene 3.30

Benzene, propyl- 3.69

Benzene, ethenyl- 2.95

Benzene 2.13

1,3-Cyclopentadiene 2.25

Benzene, 1,2-dimethyl- 3.12

Benzene, (1-methylethyl)- 3.66

Benzene, 1,3,5-trimethyl- 3.42

Benzene, ethyl- 3.15

Toluene 2.73

Hexane 3.90

Nonane 5.65

Mobility in soil: Some migration through soils and groundwater.

Other adverse effects: No data available.

13. Disposal considerations

Disposal instructions: Dispose of contents/container to an appropriate treatment and disposal facility in accordance with applicable laws and regulations, and product characteristics at time of disposal. Waste generator is advised to carefully consider hazardous properties and control measures needed for other materials that may be found in the waste.

Contaminated Packaging: Check local, federal and state environmental regulations prior to disposal.

14. Transport information**DOT**

| | |
|-------------------------------|--|
| UN number or ID number: | UN 1268 |
| UN Proper Shipping Name: | Petroleum distillates, n.o.s. |
| Transport Hazard Class(es) | |
| Class: | 3 |
| Label(s): | 3 |
| Packing Group: | III |
| Marine Pollutant: | Yes |
| Special precautions for user: | Reference Emergency Response Guidebook No. 128, latest revision. |
| Reportable quantity | Benzene 10 lbs Naphthalene 100 lbs |

IMDG

| | |
|-------------------------------|---|
| UN number or ID number: | UN 1268 |
| UN Proper Shipping Name: | PETROLEUM DISTILLATES, N.O.S. |
| Transport Hazard Class(es) | |
| Class: | 3 |
| Label(s): | 3 |
| EmS No.: | F-E, S-E |
| Packing Group: | III |
| Marine Pollutant: | Yes |
| Limited quantity | 5.00L |
| Excepted quantity | E1 |
| Special precautions for user: | Transport in bulk according to Annex I of MARPOL 73/78 and the IBC Code: Annex I - yes; IBC02 |

15. Regulatory information**US Federal Regulations****TSCA Section 12(b) Export Notification (40 CFR 707, Subpt. D)**

| <u>Chemical Identity</u> | <u>Reportable quantity</u> |
|--------------------------|---|
| 1,3-Cyclopentadiene | De minimis concentration: 1.0% One-Time Export Notification only. |

US. OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050), as amended

| <u>Chemical Identity</u> | <u>OSHA hazard(s)</u> |
|--------------------------|--|
| Benzene | Blood Central nervous system Cancer Aspiration respiratory tract irritation Flammability Skin Eye |

CERCLA Hazardous Substance List (40 CFR 302.4):

| <u>Chemical Identity</u> | <u>Name on List:</u> | <u>Reportable quantity</u> |
|---------------------------|-------------------------------|----------------------------|
| Naphthalene | NAPHTHALENE | 100 lbs. |
| Benzene, propyl- | RCRA Hazardous Waste No. D001 | 100 lbs. |
| Benzene, ethenyl- | STYRENE | 1000 lbs. |
| Benzene | BENZENE | 10 lbs. |
| Benzene, 1,2-dimethyl- | o-Xylene | 1000 lbs. |
| Benzene, (1-methylethyl)- | Benzene,1-methylethyl- | 5000 lbs. |
| Benzene, ethyl- | ETHYLBENZENE | 1000 lbs. |
| Butane, 2,2,3-trimethyl- | RCRA Hazardous Waste No. D001 | 100 lbs. |
| Pentane, 3-methyl- | RCRA Hazardous Waste No. D001 | 100 lbs. |
| Toluene | BENZENE, METHYL- | 1000 lbs. |

| | | |
|---------------------------|-------------------------------|-----------|
| Pentane, 2,3,4-trimethyl- | RCRA Hazardous Waste No. D001 | 100 lbs. |
| Hexane, 3-methyl- | RCRA Hazardous Waste No. D001 | 100 lbs. |
| Cyclopentane | RCRA Hazardous Waste No. D001 | 100 lbs. |
| Benzene, 1,3-dimethyl- | m-Xylene | 1000 lbs. |
| Hexane | HEXANE | 5000 lbs. |
| Nonane | RCRA Hazardous Waste No. D001 | 100 lbs. |

Superfund Amendments and Reauthorization Act of 1986 (SARA)

Hazard categories

Flammable (gases, aerosols, liquids, or solids), Acute toxicity (any route of exposure), Skin Corrosion or Irritation, Serious eye damage or eye irritation, Germ Cell Mutagenicity, Carcinogenicity, Reproductive Toxicity, Specific target organ toxicity (single or repeated exposure), Aspiration Hazard

US. EPCRA (SARA Title III) Section 304 Extremely Hazardous Substances Reporting Quantities and the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) Hazardous Substances

None present or none present in regulated quantities.

US. EPCRA (SARA Title III Section 313 Toxic Chemical Release Inventory (TRI) Reporting

| <u>Chemical Identity</u> | <u>Reporting threshold for other users</u> | <u>Reporting threshold for manufacturing and processing</u> |
|---|--|---|
| 4,7-Methano-1H-indene, 3a,4,7,7a-tetrahydro- | 10000 lbs | 25000 lbs. |
| Naphthalene | 10000 lbs | 25000 lbs. |
| Benzene, ethenyl- | 10000 lbs | 25000 lbs. |
| Benzene | 10000 lbs | 25000 lbs. |
| Benzene, 1,2-dimethyl- | 10000 lbs | 25000 lbs. |
| Benzene, (1-methylethyl)- | 10000 lbs | 25000 lbs. |
| Benzene, ethyl- | 10000 lbs | 25000 lbs. |

Clean Air Act (CAA) Section 112(r) Accidental Release Prevention (40 CFR 68.130):

None present or none present in regulated quantities.

Clean Water Act Section 311 Hazardous Substances (40 CFR 117.3)

| <u>Chemical Identity</u> | <u>Reportable quantity</u> |
|--------------------------|----------------------------|
| Naphthalene | 100 lbs. |
| Benzene, ethenyl- | 1000 lbs. |
| Benzene | 10 lbs. |
| Benzene, 1,2-dimethyl- | 100 lbs. |
| Benzene, ethyl- | 1000 lbs. |
| Toluene | 1000 lbs. |
| Benzene, 1,3-dimethyl- | 100 lbs. |

US State Regulations

US. California Proposition 65



WARNING: This product can expose you to chemicals including, Benzene; which is [are] known to the State of California to cause cancer and birth defects or other reproductive harm.

This product can expose you to chemicals including, Naphthalene; Benzene, ethenyl-; Benzene, (1-methylethyl)-; Benzene, ethyl-; which is [are] known to the State of California to cause cancer.

This product can expose you to chemicals including, Toluene; Hexane; which is [are] known to the State of California to cause birth defects or other reproductive harm.

For more information go to www.P65Warnings.ca.gov.

Inventory Status

| | |
|----------------------------|--|
| Canada DSL Inventory List: | On or in compliance with the inventory |
| US TSCA Inventory: | On or in compliance with the inventory |

16. Other information, including date of preparation or last revision

Issue Date: 04/18/2022

Revision Information: 04/18/2022: SDS Update – composition edits, OEL updates, section 15 updates
10/08/2021: SDS Update – Section 9 edits, section 15 updates, phrase edits
04/14/2021: SDS Update – composition edits, ATEmix edits
12/16/2020: SDS Update – composition edits, OEL updates, section 15 updates
08/19/2020: SDS Update – GHS classification change, composition edits, OEL edits, section 15 edits, and phrase edits
04/21/2020: SDS Update – composition edits
12/12/2019: SDS Update

Version #: 9.4

Abbreviations and acronyms: ACC = American Chemistry Council; ACGIH = American Conference of Governmental Industrial Hygienists; BOD = Biochemical Oxygen Demand; C = Ceiling; CAS = Chemical Abstracts Service; CERCLA = Comprehensive Environmental Response, Compensation, and Liability Act; CFR = Code of Federal Regulations; COD = Chemical Oxygen Demand; DOT = Department of Transportation; DSL = Domestic Substances List; EC50 = Effective Concentration 50%; EPA = Environmental Protection Agency; GHS = Globally Harmonized System for the Classification and Labelling of Chemicals; HPV = High Production Volume; IARC = International Agency for Research on Cancer; LC50 = Lethal Concentration 50%; LD50 = Lethal Dose 50%; NFPA = National Fire Protection Association; NIOSH = National Institute for Occupational Safety and Health; NTP = National Toxicology Program; OSHA = Occupational Safety and Health Administration; PEL = Permissible Exposure Limit; PMCC = Pensky-Martens Closed Cup; PPE = Personal Protective Equipment; RCRA = Resource Conservation and Recovery Act; REL = Recommended Exposure Limit; SARA = Superfund Amendments and Reauthorization Act; SCBA = Self Contained Breathing Apparatus; SDS = Safety Data Sheet; STEL = Short Term Exposure Limit; TLV = Threshold Limit Value; TSCA = Toxic Substances Control Act; TWA = Time Weighted Average

Further Information: For additional information on equipment bonding and grounding, refer to the American Petroleum Institute (API) Recommended Practice 2003, "Protection Against Ignitions Arising out of Static, Lightning, and Stray Currents" or National Fire Protection Association (NFPA) 77, "Recommended Practice on Static Electricity".

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