Date of Issue:

13 May 2015

**SAFETY DATA SHEET**

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| **1. Substance and Source Identification** |

**Product Identifier**

**SRM Number:** 2290

**SRM Name:** Ethyl-*t*-butyl Ether in Reference Gasoline (Nominal 2.0 Weight Percent Oxygen)

**Other Means of Identification:** Not applicable.

**Recommended Use of This Material and Restrictions of Use**

This Standard Reference Material (SRM) is intended primarily for use a primary standard for the calibration of instruments and the evaluation of methods used for the determination of oxygen content of motor fuels. A unit of SRM 2290 consists of two 20 mL ampoules each containing approximately 18 mL of an ethyl-t-butyl ether in gasoline solution, and one 20 mL ampoule containing approximately 18 mL of reference gasoline intended for use as a measurement blank.

**Company Information**

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| --- | --- |
| National Institute of Standards and Technology |  |
| Standard Reference Materials Program |  |
| 100 Bureau Drive, Stop 2300 |  |
| Gaithersburg, Maryland 20899‑2300 |  |
|  |  |
| Telephone: 301‑975‑2200 | Emergency Telephone ChemTrec: |
| FAX: 301‑948‑3730 | 1‑800‑424‑9300 (North America) |
| E‑mail: [SRMMSDS@nist.gov](mailto:SRMMSDS@nist.gov) | +1‑703‑527‑3887 (International) |
| Website: <http://www.nist.gov/srm> |  |

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| **2. Hazards Identification** |

**Classification**

**Physical Hazard:** Flammable liquid Category 2

**Health Hazard:** Skin Irritation Category 2

Eye Irritation Category 2B

Germ Cell Mutagenicity Category 1B

Carcinogenicity Category 1B

Reproductive Toxicity Category 2

STOT, Single Exposure Category 3

STOT, Repeated Exposure Category 1

Aspiration Hazard Category 1

**Label Elements**

**Symbol**



**Signal Word**

Danger

**Hazard Statement(s)**

|  |  |
| --- | --- |
| H225 | Highly flammable liquid and vapor. |
| H304 | May be fatal if swallowed and enters airways |
| H315+H320 | Causes skin and eye irritation. |
| H340 | May cause genetic effects. |
| H350 | May cause cancer. |
| H361 | Suspected of damaging fertility or the unborn child. |
| H336 | May cause drowsiness or dizziness. |
| H373 | May cause damage to organs (liver, kidneys, and nervous system) through prolonged or repeated exposure. |

**Precautionary Statement(s)**

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| P201 | Obtain special instructions before use. |
| P202 | Do not handle until all safety precautions have been read and understood. |
| P210 | Keep away from heat, sparks, open flames, hot surfaces. — No smoking. |
| P233 | Keep container tightly closed. |
| P241 | Use explosion‑proof electrical, ventilating, and lighting equipment. |
| P242 | Use only non‑sparking tools. |
| P243 | Take precautionary measures against static discharge. |
| P260 | Do not breathe fumes, mist, vapors, or spray. |
| P264 | Wash hands thoroughly after handling. |
| P270 | Do not eat, drink, or smoke when using this product. |
| P271 | Use only outdoors or in a well-ventilated area. |
| P280 | Wear protective gloves, eye protection, protective clothing. |
|  |  |
| P301+P310+P331 | If swallowed: Immediately call a doctor. Do NOT induce vomiting. |
| P302+P361+P352 | If on skin (or hair): Take off immediately all contaminated clothing. Rinse skin with water. |
| P304+P340 | If inhaled: Remove person to fresh air and keep comfortable for breathing. |
| P305+P351+P338 | If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. |
| P308+P313 | IF exposed or concerned: Get medical attention. |
| P332+P337+P313 | If skin or eye irritation occurs: get medical attention. |
| P362+P364 | Take off contaminated clothing and wash it before reuse. |
|  |  |
| P403+P235+P233 | Store in a well‑ventilated place. Keep cool. Keep container tightly closed. |
| P405 | Store locked up. |
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| P501 | Dispose of contents and container according to local regulations. |

**Hazards Not Otherwise Classified:** None.

**Ingredients(s) with Unknown Acute Toxicity:** None.

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| **3. Composition and Information on Hazardous Ingredients** |

**Substance:** Gasoline

**Other Designations:** Gasoline blend.

**Note:** The concentrations of the compounds that are not listed in this section are below the reportable limit for hazardous components (1 % or greater) and carcinogens (0.1 % or greater), required by OSHA, 29 CFR 1910.1200 (g)(2)(i)(C)(1), for SDS information. For actual concentrations, see the NIST Certificate of Analysis.

| **Hazardous Component** | **CAS Number** | **EC Number (EINECS)** | **Nominal Mass Concentration (%)** |
| --- | --- | --- | --- |
| Reformulated Gasoline | 8006‑61‑9 | 232‑349‑1 | 87 |
| Ethyl-*t*-butyl Ether | 637-92-3 | 211-309-7 | 13 |
| **Individual Hazardous Components** | | | |
|  |  |  |  |
| *m*‑Xylene,  *o*‑Xylene  *p*‑Xylene | 108‑38‑3  95‑47‑6  106‑42‑3 | 203‑576‑3  202‑422‑2  203‑396‑5 | 0 to 21 |
| Toluene | 108‑88‑3 | 203‑625‑9 | 0 to 15 |
| Benzene | 71‑43‑2 | 200‑753‑7 | 0 to 5 |
| 1,2,4‑Trimethylbenzene | 95‑63‑6 | 202‑436‑9 | 0 to 5 |
| Ethylbenzene | 100‑41‑4 | 202‑849‑4 | 0 to 5 |
| *n*-Hexane | 110-54-3 | 203-777-6 | 0 to 4 |
| Cyclohexane | 110-82-7 | 203‑806‑2 | 0 to 2 |

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| **4. First Aid Measures** |

**Description of First Aid Measures**

**Inhalation:** If adverse effects occur, remove to well‑ventilated (uncontaminated) area. If breathing is difficult, qualified personnel may administer oxygen. If not breathing, qualified personnel should give artificial respiration. Seek immediate medical attention.

**Skin Contact:** Rinse affected skin with water for at least 15 minutes, then wash thoroughly with soap or mild detergent and water. If skin irritation persists, seek medical aid and bring the container or label.

**Eye Contact:** Immediately flush eyes, including under the eyelids, with copious amounts of water for at least 15 minutes. Seek immediate medical attention.

**Ingestion:** Aspiration hazard. Do not induce vomiting. Contact local poison control immediately; if vomiting occurs, keep head lower than hips to prevent aspiration. If unconscious, turn head to side; get medical attention immediately.

**Most Important Symptoms/Effects, Acute and Delayed:** Aspiration hazard, blood damage, liver damage, central nervous system depression, cancer hazard (in humans).

**Indication of any immediate medical attention and special treatment needed, if necessary:** If any of the above symptoms are present, seek immediate medical attention.

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| **5. Fire Fighting Measures** |

**Fire and Explosion Hazards:** Severe fire hazard. Vapor/air mixtures are explosive above the flash point. Vapors or gases may ignite at distant ignition sources and flash back. See Section 9, “Physical and Chemical Properties” for flammability properties.

**Extinguishing Media**

Suitable: Regular dry chemical, carbon dioxide, water, or alcohol‑resistant foam.

Unsuitable: None listed.

**Specific Hazards Arising from the Chemical**: Not applicable.

**Special Protective Equipment and Precautions for Fire‑Fighters:** Move container from fire area if it can be done without personal risk. Avoid inhalation of material or combustion by‑products. Wear full protective clothing and NIOSH‑approved self‑contained breathing apparatus (SCBA).

**NFPA Ratings** (0 = Minimal; 1 = Slight; 2 = Moderate; 3 = Serious; 4 = Severe)

Health = 3 Fire = 3 Reactivity = 0

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| **6. Accidental Release Measures** |

**Personal Precautions, Protective Equipment and Emergency Procedures:** Use suitable protective equipment; see Section 8, “Exposure Controls and Personal Protection”. Keep out of waters supplies and sewers.

**Methods and Materials for Containment and Clean up:** Avoid heat, flames, sparks and other sources of ignition. Stop leak if possible without personal risk, with water spray to reduce vapors. Absorb spilled material with sand or non‑combustible material and collect in appropriate container for disposal.

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| **7. Handling and Storage** |

**Safe Handling Precautions:** See Section 8, “Exposure Controls and Personal Protection”.

**Storage and Incompatible Materials:** Store in a well‑ventilated area. Keep separated from incompatible substances (see Section 10, “Stability and Reactivity”).

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| **8. Exposure Controls and Personal Protection** |

| **Exposure Limits** | | | |
| --- | --- | --- | --- |
| **Components** | **OSHA (PEL)** | **ACGIH (TLV)** | **NIOSH (REL)** |
| Gasoline | There is no PEL for gasoline in general industry in [29 CFR 1910.1000 Z‑1 Table](https://www.osha.gov/pls/oshaweb/owadisp.show_document?p_table=STANDARDS&p_id=9992&p_text_version=FALSE).(a) | TWA: 300 ppm STEL: 500 ppm | NOEL(b) |
| Ethyl-t-butyl Ether | NOEL | STEL: 25 ppm | NOEL |
| *Individual Components of Reformulated Gasoline in SRM 2290 with occupational exposure limits.* | | | |
| *m*-Xylene  *o*-Xylene  *p*-Xylene | NOEL | 100 ppm TWA  150 ppm STEL | TWA: 435 mg/m3 (100 ppm)  STEL: 655 mg/m3 (150 ppm)  IDLH: 900 ppm |
| Toluene | TWA: 200 ppm  Ceiling: 300 ppm | TWA: 20 ppm | TWA: 375 mg/m3 (100 ppm)  STEL: 560 mg/m3 (150 ppm)  IDLH: 500 ppm |
| Benzene | TWA: 1 ppm  STEL: 5 ppm(c)  Ceiling: 25 ppm(c)  Action level: 0.5 ppm (d) | TWA: 0.5 ppm  STEL: 2.5 ppm  Skin(e) | TWA: 0.1 ppm  STEL: 1 ppm  IDLH: 500 ppm |
| 1,2,4-Trimethylbenzene | NOEL | NOEL | TWA: 25 ppm |
| Ethyl benzene | TWA: 435 mg/m3 (100 ppm) | TWA: 20 ppm | TWA: 435 mg/m3 (100 ppm)  STEL: 545 mg/m3 (125 ppm)  IDLH: 800 ppm(f) |
| *n*‑Hexane | TWA: 1800 mg/m3 (500 ppm) | TWA: 50 ppm Skin(e) | TWA: 180 mg/m3 (50 ppm)  IDLH: 1100 ppm(f) |
| Cyclohexane | TWA: 1050 mg/m3 (300 ppm) | TWA: 100 ppm | TWA: 1050 mg/m3 (300 ppm)  IDLH: 1300 ppm |

(a) The composition of these materials varies greatly. The content of benzene, other aromatics and additives should be determined individually.

(b) NOEL: No occupational exposure limits established.

(c) 15 minutes.

(d) Cancer hazard, flammable, see 29 CFR 1910.1028.

(e) Skin – Potential significant contribution to overall exposure by the cutaneous route.

**Engineering Controls:** Provide local exhaust or process enclosure ventilation system. Ensure compliance with applicable exposure limits.

**Personal Protection Measures:** In accordance with OSHA 29 CFR 1910.132, subpart I, wear appropriate Personal Protective Equipment (PPE) to minimize exposure to this material.

**Respiratory Protection:** If workplace conditions warrant a respirator, a respiratory protection program that meets OSHA 29CFR 1910.134 must be followed. Refer to NIOSH 42 CFR 84 for applicable certified respirators.

**Eye Protection:** Splash resistant safety goggles and emergency eyewash are recommended.

**Skin and Body Protection:** Chemical resistant clothing and gloves are recommended.

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| **9. Physical and Chemical Properties** |

| **Properties** | **Gasoline** | **Ethyl-*t*-butyl Ether 13 %** |
| --- | --- | --- |
| **Molar Mass (g/mol)** | not applicable | 102.18 |
| **Molecular Formula** | not applicable | C6H14O |
| **Appearance (physical state, color, etc.)** | clear, colorless to amber liquid | not available |
| **Odor** | distinct odor | not available |
| **Odor threshold** | 0.25 ppm | not available |
| **pH** | not available | not available |
| **Evaporation rate** (carbon tetrachloride = 1) | not available | not available |
| **Melting point/freezing point** | not available | –97 °C to –94 °C (–143 °F to –137 °F) |
| **Specific Gravity** (water = 1) | 0.7 to 0.8 at 15 °C | 0.7364 to 0.742 |
| **Density** | 694.1 kg/m3 at 15 °C | not available |
| **Vapor Pressure** | not available | 130 to 155 mmHg at 25 °C |
| **Vapor Density (air = 1)** | 3 to 4 | 1.39 |
| **Viscosity** | not available | not available |
| **Solubilities** | water: insoluble; soluble in absolute alcohol, ether, chloroform, and benzene | water: 1.2 % |
| **Partition coefficient (n‑octanol/water)** | not available | not available |
| **Thermal Stability Properties** |  |  |
| **Autoignition Temperature** | 280 °C to 456 °C (536 °F to 853 °F) | not available |
| **Thermal Decomposition** | not applicable | not applicable |
| **Initial boiling point and boiling range** | 38 °C to 204 °C  (100 °F to 399 °F) | 69 °C to 73 °C  (156 °F to 163 °F) |
| **Explosive Limits, LEL (Volume %)** | 1.2 % | not available |
| **Explosive Limits, UEL (Volume %)** | 7.6 % | not available |
| **Flash Point (Estimate)** | –35 °C (–31 °F) | –19 °C (–2.2 °F) |
| **Flammability (solid, gas)** | not applicable | not applicable |

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| **10. Stability and Reactivity** |

**Reactivity:** This material is stable at normal temperatures and pressure.

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| **Stability:** | X | Stable |  | Unstable |

**Possible Hazardous Reactions:** Not applicable.

**Conditions to Avoid:** Avoid heat, flames, sparks, and other sources of ignition. Minimize contact with material. Avoid inhalation of material or combustion by‑products. Keep out of water supplies and sewers.

**Incompatible Materials:** Oxidizing materials.

**Hazardous Decomposition:** Oxides of carbon.

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| **Hazardous Polymerization:** |  | Will Occur | X | Will Not Occur |

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| **11. Toxicological Information** |

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| --- | --- | --- | --- | --- | --- | --- |
| **Route of Exposure:** | X | Inhalation | X | Skin | X | Ingestion |

**Symptoms Related to the Physical, Chemical and Toxicological Characteristics:** Skin irritation, eye irritation, central nervous system depression, and nerve damage.

**Potential Health Effects (Acute, Chronic, and Delayed)**

**Inhalation:** Acute exposure may result in irritation, headache, drowsiness, dizziness, vomiting, sleep disturbances, emotional disturbances, tremors, loss of coordination, visual disturbances, chest pain, difficulty breathing, irregular heartbeat, lung congestion, internal bleeding, blood disorders, kidney damage, liver damage, paralysis, brain damage, convulsions, unconsciousness, and coma. Chronic exposure may result in the same effects as acute exposure but with changes in body temperature, changes in blood pressure, loss of appetite, menstrual disorders, nerve damage, reproductive effects, and cancer.

**Skin Contact:** Acute exposure may cause irritation, skin disorders. Chronic exposure may cause irritation, skin disorders, tingling sensation, and allergic reactions.

**Eye Contact:** Exposure may result in irritation and other reversible effects.

**Ingestion:** Aspiration hazard. Exposure may cause the same effects as listed for inhalation. Repeated or prolonged ingestion may result in reproductive effects and cancer.

**Numerical Measures of Toxicity**

**Acute Toxicity:** Not classified.

| **Components** | **Acute Toxicity** |
| --- | --- |
| Gasoline | Rat, Inhalation, LC50: 300 g/m3 (5 min) |
| *Ethyl-t-butyl Ether* | Rat, Oral, LD50: >2000 mg/kg  Rat, Inhalation, LC50: >5800 mg/m3 (4 h)  Rabbit, Skin LD50: >2000 mg/kg |
| *Individual Components of Reformulated Gasoline in SRM 2290 with Acute Toxicity information available are listed.* | |
| *m*‑Xylene and  *p*‑Xylene | Rat, Oral, LD50: 4988 mg/kg; >3392 mg/kg  Rat, Inhalation, LC50: 4550 ppm (4 h); Mouse, Inhalation, LC50: 5267 ppm (6 h)  Rabbit, Dermal LD50: 14 100 μL/kg |
| *o*‑Xylene | Rat, Oral, LD50: 3567 mg/kg  Rat, Inhalation, LC50 2180 ppm (4 h); Mouse, Inhalation, LC50: 4595 ppm (6 h)  Rabbit, Dermal LD50: 14 100 μL/kg |
| Toluene | Rat, Oral, LD50: 636 mg/kg  Rat, Inhalation, LC50: >26 700 ppm (1 h); 12.5 mg/L (4 h); 49 g/m3 (4 h)  Rabbit, Dermal LD50: 8390 mg/kg; 14 100 μL/kg |
| Benzene | Rat, Oral, LD50: 930 mg/kg; 1 mL/kg; 6400 mg/kg; 1800 mg/kg  Rat, Inhalation, LC50: 13 050 ppm to 14 380 ppm (4 h)  Rabbit, Dermal LD50: >9400 μL/kg |
| 1,2,4‑Trimethylbenzene | Rat, Oral, LD50: 3400 mg/kg  Rat, Inhalation, LC50: 18 g/m3 (4 h)  Rabbit, Dermal LD50: >3160 mg/kg |
| Ethylbenzene | Rat, Oral, LD50: 3500 mg/kg  Rat, Inhalation, LC50: 17.2 mg/L (4 h)  Rabbit, Dermal LD50: 15 354 mg/kg |
| *n*‑Hexane | Rat, Oral, LD50: 15 840 mg/kg  Rat, Inhalation, LC50: 48 000 ppm (4 h)  Rabbit, Dermal LD50: 3000 mg/kg |
| Cyclohexane | Rat, Oral, LD50: >5000 mg/kg  Rat, Inhalation, LC50: 13.9 mg/L (4 h); >9500 ppm (4 h)  Rabbit, Dermal LD50: >2000 mg/kg |

**Skin corrosion/irritation:** Category 2

Gasoline, Rabbit skin: 500 μL (24 h) – mild

*Ethyl-t-butyl Ether*, Rabbit skin: 500 µL (4 h) – ,moderate

Toluene, Rabbit skin: 435 mg (24 h) – mild; 20 mg (24 h) – moderate; 500 mg – moderate

Benzene, Rabbit skin: 20 mg (24 h) moderate; rabbit open skin: 15 mg (24 h) – mild

**Serious eye damage/eye irritation:** Category 2B

Gasoline, Human eyes: 140 ppm (8 h) – mild; man eyes: 500 ppm (1 h) – moderate

Ethyl-t-butyl Ether, Rabbit eyes: 100 µL (24 h) – moderate

Toluene, Human eyes: 300 ppm; Rabbit eyes: 870 μg – mild

*n*-Hexane, Rabbit eyes: 10 mg – mild; Vapors at 880 ppm for 15 min caused irritation.

Benzene, Rabbit eyes: 88 mg – moderate; 2 mg (24 h) severe

**Respiratory sensitization:** No data available.

**Skin sensitization:** No data available.

Individuals have reported sensitivity to some of the components.

**Germ Cell Mutagenicity:** Mutagenic Category 1B

Benzene: cytogenic analysis, human inhalation: 0.1 ppm

**Carcinogenicity:** Category 1B

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| --- | --- | --- | --- | --- |
| Listed as a Carcinogen/Potential Carcinogen | X | Yes |  | No |

IARC: Benzene is listed by IARC as Group 1, carcinogenic to humans; gasoline, ethylbenzene, and naphthalene are listed by IARC as Group 2b, possibly carcinogenic to humans; toluene is listed by IARC as Group 3, not classifiable.

NTP: Benzene is listed by NTP as known human carcinogen;

OSHA: Benzene is on the list of OSHA identified carcinogens.

**Reproductive Toxicity:** Category 2

Toluene, Rat, Inhalation, TCLo: 1500 ppm (7 to 20 days pregnant)

Benzene, Rat Inhalation, TCLo: 50 ppm (24 h, 7 to 14 days pregnant)

**STOT, Single Exposure:** Category 3, Central Nervous System Depressant

Gasoline and the individual components have shown central nervous system depressant effects.

**STOT, Repeated Exposure:** Category 1

Benzene may affect blood and kidney systems.

**Aspiration Hazard:** Category 1

Gasoline, toluene, *n*‑hexane, and benzene are aspiration hazards.

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| **12. Ecological Information** |

**Ecotoxicity Data:** *Components of Reformulated Gasoline in SRM 2290 with ecotoxicity data are listed.*

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| **Components** | **Aquatic Toxicity** |
| Gasoline | Fish: 96 Hr LC50 Rainbow trout (*Oncorhynchirus mykiss*): 56 mg/L  Algae: 72 Hr EC50 *Pseudokirchneriella subcapitata*: 4700 mg/L |
| Toluene | Fish: 96 Hr LC50 Rainbow trout (*Oncorhynchirus mykiss*): 5.8 mg/L [semi-static]  Algae: 96 Hr EC50 *Pseudokirchneriella subcapitata*: >433 mg/L  Invertebrate: 48 Hr EC50 Freshwater water flea (*Daphnia magna*): 5.46‑9.83 mg/L |
| *n*‑Hexane | Fish: 96 Hr LC50 Fathead minnow (*Pimephales promelas*): 2.1‑2.98 mg/L [flow-through]  Invertebrate: 24 Hr EC50 Freshwater water flea (*Daphnia magna*): >1000 mg/L |
| Benzene | Fish: 96 Hr LC50 Rainbow trout (*Oncorhynchirus mykiss*): 5.3 mg/L [flow‑through]  Algae: 72 Hr EC50 *Pseudokirchneriella subcapitata*: 29 mg/L  Invertebrate: 48 Hr EC50 Freshwater water flea (*Daphnia magna*): 9–16 mg/L [static] |

**Persistence and Degradability:** No data available.

**Bioaccumulative Potential:** Bioconcentration factors: benzene (3.5 to 4.4, species fish).

**Mobility in Soil:** No data available.

**Other Adverse effects:** No data available.

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| **13. Disposal Considerations** |

**Waste Disposal:** Dispose in accordance with all applicable federal, state, and local regulations. Subject to hazardous waste regulations US EPA 40 CFR 262:

Gasoline: Hazardous waste number D018 for concentrations at or above the regulatory level (0.05 mg/L); Hazardous waste number D001.

Ethyl-*t*-butyl Ether Hazardous waste number D001.

Toluene Hazardous waste number U220.

Benzene Hazardous waste number U019, ignitable waste, toxic waste, regulatory level 0.5 mg/L.

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| **14. Transportation Information** |

**U.S. DOT and IATA:** UN1203; Gasoline; Hazard Class 3; Packing Group II.

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| **15. Regulatory Information** |

**U.S. Regulations**

CERCLA Sections 102a/103 (40 CFR 302.4): Final RQ listed below.

Toluene: 1000 lbs (454 kg)

*n*‑Hexane: 5000 lbs (2270 kg)

Benzene: 10 lbs (4.54 kg)

SARA Title III Section 302 (40 CFR 355.30): None of the components are regulated.

SARA Title III Section 304 (40 CFR 355.40): None of the components are regulated.

SARA Title III Section 313 (40 CFR 372.65):

Toluene: 1.0 % de minimis concentration

*n*‑Hexane: 1.0 % de minimis concentration

Benzene: 0.1 % de minimis concentration

OSHA Process Safety (29 CFR 1910.119): None of the components are regulated.

SARA Title III Sections 311/312 Hazardous Categories (40 CFR 370.21):

ACUTE HEALTH: Yes

CHRONIC HEALTH: Yes

FIRE: Yes

REACTIVE: No

PRESSURE: No

**State Regulations**

California Proposition 65:

WARNING! This product contains chemicals (benzene, toluene) known to the state of California to cause reproductive developmental effects.

WARNING! This product contains chemicals (benzene, ethylbenzene) known to the state of California to cause cancer.

**U.S. TSCA Inventory:** Gasoline, ethyl-*t*-butyl ether, cyclohexane, toluene, *o*‑xylene, *m*‑xylene, *p*‑xylene, *n*‑hexane, 1,2,4‑trimethylbenzene, ethylbenzene, benzene are listed.

T**SCA 12(b), Export Notification:** Not listed.

**Canadian Regulations:** WHMIS Information is not provided for this material.

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| **16. Other Information** |

Issue Date: 13 May 2015

Sources: ChemADVISOR, Inc., SDS *Gasoline, Automotive, Unleaded*, 15 December 2014.

ChemADVISOR, Inc., SDS *Benzene*, 15 December 2014.

ChemADVISOR, Inc., SDS *Toluene*, 15 December 2014.

ChemADVISOR, Inc., SDS *1,2,4-Trimethylbenzene*, 15 December 2014.

ChemADVISOR, Inc., SDS *Cyclohexane*, 15 December 2014.

ChemADVISOR, Inc., SDS *Ethylbenzene*, 15 December 2014.

ChemADVISOR, Inc., SDS *n-Hexane*, 15 December 2014.

ChemADVISOR, Inc., SDS *m-Xylene*, 15 December 2014.

ChemADVISOR, Inc., SDS *p-Xylene*, 15 December 2014.

ChemADVISOR, Inc., SDS *o-Xylene*, 15 December 2014.

ChemADVISOR, Inc., SDS *Ethyl-t-butyl Ether*, 20 March 2015.

Vendor, SDS, *Unbranded Conventional Gasoline*, 26 February 2013.

Key of Acronyms:

|  |  |  |  |
| --- | --- | --- | --- |
| ACGIH | American Conference of Governmental Industrial Hygienists | NTP | National Toxicology Program |
| CAS | Chemical Abstracts Service | OSHA | Occupational Safety and Health Administration |
| CERCLA | Comprehensive Environmental Response, Compensation, and Liability Act | PEL | Permissible Exposure Limit |
| CFR | Code of Federal Regulations | RCRA | Resource Conservation and Recovery Act |
| DOT | Department of Transportation | REL | Recommended Exposure Limit |
| EINECS | European Inventory of Existing Commercial Chemical Substances | RQ | Reportable Quantity |
| EPCRA | Emergency Planning and Community Right‑to‑Know Act | RTECS | Registry of Toxic Effects of Chemical Substances |
| IARC | International Agency for Research on Cancer | SARA | Superfund Amendments and Reauthorization Act |
| IATA | International Air Transportation Agency | SCBA | Self‑Contained Breathing Apparatus |
| IDLH | Immediately Dangerous to Life and Health | SRM | Standard Reference Material |
| LC50 | Lethal Concentration | STEL | Short Term Exposure Limit |
| LD50 | Median Lethal Dose or Lethal Dose, 50 % | STOT | Specific Target Organ Toxicity |
| LEL | Lower Explosive Limit | TLV | Threshold Limit Value |
| MSDS | Material Safety Data Sheet | TPQ | Threshold Planning Quantity |
| NFPA | National Fire Protection Association | TSCA | Toxic Substances Control Act |
| NIOSH | National Institute for Occupational Safety and Health | TWA | Time Weighted Average |
| NIST | National Institute of Standards and Technology | UEL | Upper Explosive Limit |
| n.o.s. | Not Otherwise Specified | WHMIS | Workplace Hazardous Materials Information System |

**Disclaimer:** Physical and chemical data contained in this SDS are provided only for use in assessing the hazardous nature of the material. The SDS was prepared carefully, using current references; however, NIST does not certify the data in the SDS. The values for this material are given in the NIST Certificate of Analysis.

Users of this SRM should ensure that the SDS in their possession is current. This can be accomplished by contacting the SRM Program: telephone (301) 975‑2200; fax (301) 948‑3730; e‑mail srmmsds@nist.gov; or via the Internet at <http://www.nist.gov/srm>.