# SAFETY DATA SHEET

Unleaded 91

## Section 1. Identification

**GHS product identifier** Unleaded 91

**Other means of identification** regular unleaded petrol

**Product code** 0000002733

**SDS no.** 0000002733

**Historic SDS no.** 875; 0000002889

**Relevant identified uses of the substance or mixture and uses advised against**

**Use of the substance/ mixture** Use only as a motor fuel for spark ignition engines. NOT for aviation use. Should NOT be used as a solvent nor cleaning agent.
For specific application advice see appropriate Technical Data Sheet or consult our company representative.

**Manufacturer**

**Supplier**

BP Australia Pty Ltd
Level 17, 717 Bourke Street
Docklands, Victoria 3008
ABN 53 004 085 616

www.bp.com.au

Technical Helpline Number: 1300 139 700

**EMERGENCY TELEPHONE NUMBER** 1800 638 556

## Section 2. Hazard(s) identification

**Classification of the substance or mixture**

FLAMMABLE LIQUIDS - Category 1
SKIN CORROSION/IRRITATION - Category 2
GERM CELL MUTAGENICITY - Category 1B
CARCINOGENICITY - Category 1B
SPECIFIC TARGET ORGAN TOXICITY - SINGLE EXPOSURE (Narcotic effects) - Category 3
ASPIRATION HAZARD - Category 1

**GHS label elements**

**Hazard pictograms**

**Signal word** DANGER

**Hazard statements**

H224 - Extremely flammable liquid and vapour.
H304 - May be fatal if swallowed and enters airways.
H315 - Causes skin irritation.
H336 - May cause drowsiness or dizziness.
H340 - May cause genetic defects.
H350 - May cause cancer.

**Precautionary statements**

**General**

P102 - Keep out of reach of children.
P101 - If medical advice is needed, have product container or label at hand.

## Section 2. Hazard(s) identification

**Prevention**

P201 - Obtain special instructions before use.
P202 - Do not handle until all safety precautions have been read and understood.
P281 - Use personal protective equipment as required.
P280 - Wear protective gloves, protective clothing and eye or face protection.
P210 - Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
P241 - Use explosion-proof electrical, ventilating or lighting equipment.
P242 - Use non-sparking tools.
P243 - Take action to prevent static discharges.
P271 - Use only outdoors or in a well-ventilated area.
P261 - Avoid breathing vapour.
P264 - Wash hands thoroughly after handling.

**Response**

P308 + P313 - IF exposed or concerned: Get medical attention.
P304 + P340, P312 - IF INHALED: Remove person to fresh air and keep comfortable for breathing. Call a POISON CENTER or doctor if you feel unwell.
P301 + P310, P331 - IF SWALLOWED: Immediately call a POISON CENTER or physician. Do NOT induce vomiting.
P303 + P361 + P353 - IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water.
P362 - Take off contaminated clothing and wash before reuse.
P302 + P352 - IF ON SKIN: Wash with plenty of soap and water.
P332 + P313 - If skin irritation occurs: Get medical attention.

**Storage**

P405 - Store locked up.
P403 + P233 - Store in a well-ventilated place. Keep container tightly closed.
P403 + P235 - Keep cool.

**Disposal**

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

**Supplemental label elements**

Not applicable.

**Other hazards which do not result in classification**

Static accumulating flammable liquid can become electrostatically charged even in bonded and grounded equipment. Sparks may ignite liquid and vapour may cause flash fire or explosion.

## Section 3. Composition and ingredient information

**Substance/mixture**

Mixture

A complex mixture of volatile hydrocarbons containing paraffins, naphthenes, olefins and aromatics with carbon numbers predominantly between C4 and C12. May contain oxygenates. May also contain small quantities of proprietary performance additives.

| Ingredient name | % (w/w) | CAS number |
|---|---|---|
| Gasoline | ≥90 | 86290-81-5 |
| Contains: | | |
| Benzene | <1 | 71-43-2 |
| Polycyclic aromatic hydrocarbons (PAHs) | <1 | mixture |
| diisopropyl ether | <1 | 108-20-3 |
| 2-methylpropan-2-ol | <1 | 75-65-0 |
| tert-butyl methyl ether | <1 | 1634-04-4 |

**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**

In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Eyelids should be held away from the eyeball to ensure thorough rinsing. Check for and remove any contact lenses. Get medical attention.

**Inhalation**

If inhaled, remove to fresh air. Get medical attention. If exposure to vapour, mists or fumes causes drowsiness, headache, blurred vision or irritation of the eyes, nose or throat, remove immediately to fresh air. Keep patient warm and at rest. If any symptoms persist obtain medical advice.

**Skin contact**

In case of contact, immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Drench contaminated clothing with water before removing. This is necessary to avoid the risk of sparks from static electricity that could ignite contaminated clothing. Contaminated clothing is a fire hazard. Contaminated leather, particularly footwear, must be discarded. Clean shoes thoroughly before reuse. Get medical attention.

**Ingestion**

Do not induce vomiting. Never give anything by mouth to an unconscious person. If unconscious, place in recovery position and get medical attention immediately. Aspiration hazard if swallowed. Can enter lungs and cause damage. Get medical attention immediately.

## Most important symptoms/effects, acute and delayed

See Section 11 for more detailed information on health effects and symptoms.

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

**Notes to physician**

Treatment should in general be symptomatic and directed to relieving any effects. Product can be aspirated on swallowing or following regurgitation of stomach contents, and can cause severe and potentially fatal chemical pneumonitis, which will require urgent treatment. Because of the risk of aspiration, induction of vomiting and gastric lavage should be avoided. Gastric lavage should be undertaken only after endotracheal intubation. Monitor for cardiac dysrhythmias.

**Specific treatments**

No specific treatment.

**Protection of first-aiders**

No action shall be taken involving any personal risk or without suitable training. If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Wash contaminated clothing thoroughly with water before removing it, or wear gloves.

# Section 5. Firefighting measures

## Extinguishing media

**Suitable extinguishing media**

In case of fire, use water fog, foam, dry chemical or carbon dioxide extinguisher or spray.

**Unsuitable extinguishing media**

Do not use water jet.

**Specific hazards arising from the chemical**

Extremely flammable liquid and vapour. Fire water contaminated with this material must be contained and prevented from being discharged to any waterway, sewer or drain. 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. Vapours can form explosive mixtures with air. Vapours are heavier than air and can spread along the ground or float on water surfaces to remote ignition sources. Vapours may accumulate in low or confined areas or travel a considerable distance to a source of ignition and flash back. This product is a poor conductor of electricity and can become electrostatically charged. If sufficient charge is accumulated, ignition of flammable mixtures can occur. To reduce potential for static discharge, use proper bonding and grounding procedures. This liquid may accumulate static electricity when filling properly-grounded containers. Static accumulation may be significantly increased by the presence of small

## Section 5. Firefighting measures

quantities of water or other contaminants. Liquid will float and may reignite on surface of water.

**Hazardous thermal decomposition products**

Combustion products may include the following:
carbon oxides (CO, $CO_2$) (carbon monoxide, carbon dioxide)

**Special protective actions for fire-fighters**

No action shall be taken involving any personal risk or without suitable training. Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. 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 positive pressure self-contained breathing apparatus (SCBA) and full turnout gear.

**Hazchem code**

3YE

## Section 6. Accidental release measures

**Personal precautions, protective equipment and emergency procedures**

**For non-emergency personnel**

Immediately contact 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 spilt material. No flares, smoking or flames in hazard area. Avoid breathing vapour or mist. Provide adequate ventilation. Put on appropriate personal protective equipment. Floors may be slippery; use care to avoid falling. Eliminate all ignition sources.

**For emergency responders**

Entry into a confined space or poorly ventilated area contaminated with vapour, mist or fume is extremely hazardous without the correct respiratory protective equipment and a safe system of work. Wear self-contained breathing apparatus. Wear a suitable chemical protective suit. Chemical resistant boots. See also the information in "For non-emergency personnel".

**Environmental precautions**

Avoid dispersal of spilt 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). Water polluting material. May be harmful to the environment if released in large quantities. In case of small spillages in closed waters (i.e. ports), contain product with floating barriers or other equipment. Collect spilled product by absorbing with specific floating absorbents. If possible, large spillages in open waters should be contained with floating barriers or other mechanical means. If this is not possible, control the spreading of the spillage, and collect the product by skimming or other suitable mechanical means. The use of dispersants should be advised by an expert, and, if required, approved by local authorities. Collect recovered product and other contaminated materials in suitable tanks or containers for recycle, recovery or safe disposal.

**Methods and material for containment and cleaning up**

**Small spill**

Eliminate all ignition sources. Stop leak if without risk. Move containers from spill area. Absorb with an inert material and place in an appropriate waste disposal container. Use spark-proof tools and explosion-proof equipment. Dispose of via a licensed waste disposal contractor. The method and equipment used must be in conformance with appropriate regulations and industry practice on explosive atmospheres.

**Large spill**

Eliminate all ignition sources. Stop leak if without risk. Move containers from spill area. Approach the release from upwind. Prevent entry into sewers, water courses, basements or confined areas. Dike spill area and do not allow product to reach sewage system and surface or ground water. 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. Use spark-proof tools and explosion-proof equipment. Contaminated absorbent material may pose the same hazard as the spilt product. The method and equipment used must be in conformance with appropriate regulations and industry practice on explosive atmospheres. Dispose of via a licensed waste disposal contractor.

## Section 6. Accidental release measures

## Section 7. Handling and storage

### Precautions for safe handling

**Protective measures**

Do not fill container while it is in or on a vehicle. Static electricity may ignite vapour and cause fire. Place container on ground when filling and keep nozzle in contact with container.

Put on appropriate personal protective equipment (see Section 8). Avoid exposure - obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Do not get in eyes or on skin or clothing. Do not swallow. Aspiration hazard if swallowed. Can enter lungs and cause damage. Never siphon by mouth. Avoid breathing vapour or mist. Use only with adequate ventilation. Wear appropriate respirator when ventilation is inadequate. 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. Avoid contact of spilt material and runoff with soil and surface waterways. Handling operations that can promote accumulation of static charges include but are not limited to: mixing, filtering, pumping at high flow rates, splash filling, creating mists or sprays, tank and container filling, tank cleaning, sampling, gauging, switch loading, vacuum truck operations. Restrict flow velocity according to API 2003 (2008), NFPA 77 (2007), and Laurence Britton, “Avoiding Static Ignition Hazards in Chemical Operations”. To reduce potential for static discharge, ensure that all equipment is properly grounded and bonded and meets appropriate electrical classification requirements.

**Advice on general occupational hygiene**

Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Wash thoroughly after handling. 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 original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see Section 10) and food and drink. Store locked up. Eliminate all ignition sources. Separate from oxidising materials. Keep container tightly closed and sealed until ready for use. Store and use only in equipment/containers designed for use with this product. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabelled containers. Use appropriate containment to avoid environmental contamination.

Light hydrocarbon vapours can build up in the headspace of tanks. These can cause flammability/explosion hazards even at temperatures below the normal flash point (note: flash point must not be regarded as a reliable indicator of the potential flammability of vapour in tank headspaces). Tank headspaces should always be regarded as potentially flammable and care should be taken to avoid static electrical discharge and all ignition sources during filling, ullaging and sampling from storage tanks. Do not enter storage tanks. If entry to vessels is necessary, follow permit to work procedures. Entry into a confined space or poorly ventilated area contaminated with vapour, mist or fume is extremely hazardous without the correct respiratory protective equipment and a safe system of work. When the product is pumped (e.g. during filling, discharge or ullaging) and when sampling, there is a risk of static discharge. Ensure equipment used is properly earthed or bonded to the tank structure. Electrical equipment should not be used unless it is intrinsically safe (i.e. will not produce sparks). Explosive air/vapour mixtures may form at ambient temperature. If product comes into contact with hot surfaces, or leaks occur from pressurised fuel pipes, the vapour or mists generated will create a flammability or

## Section 7. Handling and storage

explosion hazard. Product contaminated rags, paper or material used to absorb spillages, represent a fire hazard, and should not be allowed to accumulate. Dispose of safely immediately after use.

## Section 8. Exposure controls and personal protection

### Control parameters

#### Occupational exposure limits

| Ingredient name | Exposure limits |
|---|---|
| Gasoline | **ACGIH TLV (United States).**<br>TWA: 300 ppm 8 hours. Issued/Revised: 5/1996<br>TWA: 890 mg/m³ 8 hours. Issued/Revised: 5/1996<br>STEL: 500 ppm 15 minutes. Issued/Revised: 5/1996<br>STEL: 1480 mg/m³ 15 minutes. Issued/Revised: 5/1996 |
| Benzene | **Safe Work Australia (Australia).**<br>TWA: 3.2 mg/m³ 8 hours. Issued/Revised: 4/2003<br>TWA: 1 ppm 8 hours. Issued/Revised: 4/2003 |
| Polycyclic aromatic hydrocarbons (PAHs) | **Safe Work Australia (Australia).**<br>TWA: 0.2 mg/m³ 8 hours. |
| diisopropyl ether | **Safe Work Australia (Australia).**<br>STEL: 1300 mg/m³ 15 minutes. Issued/Revised: 5/1995<br>STEL: 310 ppm 15 minutes. Issued/Revised: 5/1995<br>TWA: 1040 mg/m³ 8 hours. Issued/Revised: 5/1995<br>TWA: 250 ppm 8 hours. Issued/Revised: 5/1995 |
| 2-methylpropan-2-ol | **Safe Work Australia (Australia).**<br>STEL: 455 mg/m³ 15 minutes. Issued/Revised: 5/1995<br>STEL: 150 ppm 15 minutes. Issued/Revised: 5/1995<br>TWA: 303 mg/m³ 8 hours. Issued/Revised: 5/1995<br>TWA: 100 ppm 8 hours. Issued/Revised: 5/1995 |
| tert-butyl methyl ether | **Safe Work Australia (Australia).**<br>STEL: 275 mg/m³ 15 minutes. Issued/Revised: 4/2002<br>STEL: 75 ppm 15 minutes. Issued/Revised: 4/2002<br>TWA: 92 mg/m³ 8 hours. Issued/Revised: 4/2002<br>TWA: 25 ppm 8 hours. Issued/Revised: 4/2002 |

# Section 8. Exposure controls and personal protection

**Appropriate engineering controls**

All activities involving chemicals should be assessed for their risks to health, to ensure exposures are adequately controlled. Personal protective equipment should only be considered after other forms of control measures (e.g. engineering controls) have been suitably evaluated. Personal protective equipment should conform to appropriate standards, be suitable for use, be kept in good condition and properly maintained.
Your supplier of personal protective equipment should be consulted for advice on selection and appropriate standards. For further information contact your national organisation for standards.
Provide exhaust ventilation or other engineering controls to keep the relevant airborne concentrations below their respective occupational exposure limits.
The final choice of protective equipment will depend upon a risk assessment. It is important to ensure that all items of personal protective equipment are compatible.

**Environmental exposure controls**

Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation.

**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. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.

**Eye/face protection**

Chemical splash goggles.

**Skin protection**

**Hand protection**

Wear chemical resistant gloves.

Do not re-use gloves. Protective gloves must give suitable protection against mechanical risks (i.e. abrasion, blade cut and puncture). Protective gloves will deteriorate over time due to physical and chemical damage. Inspect and replace gloves on a regular basis. The frequency of replacement will depend upon the circumstances of use.

**Recommended:** Gloves made from fluoroelastomer resistant to hydrocarbons and a wide range of chemicals.
Wear a chemically resistant multi-layer laminate inner glove inside an outer nitrile glove. The purpose of the outer glove is to protect the inner glove from cuts and mechanical damage. The presence of aromatic hydrocarbons in the product will significantly shorten the length of time that nitrile gloves will provide protection. Do not re-use nitrile gloves if exposed to aromatic hydrocarbons.

**Skin protection**

Use of protective clothing is good industrial practice.
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.
Cotton or polyester/cotton overalls will only provide protection against light superficial contamination that will not soak through to the skin. Overalls should be laundered on a regular basis. When the risk of skin exposure is high (e.g. when cleaning up spillages or if there is a risk of splashing) then chemical resistant aprons and/or impervious chemical suits and boots will be required.
Wear suitable protective clothing.
Footwear highly resistant to chemicals.
When there is a risk of ignition wear inherently fire resistant protective clothes and gloves.
When there is a risk of ignition from static electricity, wear anti-static protective clothing. For greatest effectiveness against static electricity, overalls, boots and gloves should all be anti-static.
When the risk of skin exposure is high (from experience this could apply to the following tasks: cleaning work, maintenance and service, filling and transfer, taking samples and cleaning up spillages) then a chemical protective suit and boots will be

## Section 8. Exposure controls and personal protection

required.
Work clothing / overalls should be laundered on a regular basis. Laundering of contaminated work clothing should only be done by professional cleaners who have been told about the hazards of the contamination. Always keep contaminated work clothing away from uncontaminated work clothing and uncontaminated personal clothes.

**Other skin protection**

Appropriate footwear and any additional skin protection measures should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.

**Respiratory protection**

Use with adequate ventilation.
If there is a requirement for the use of a respiratory protective device, but the use of breathing apparatus (independent of ambient atmosphere) is not required, then a suitable filtering device must be worn.
The filter class must be suitable for the maximum contaminant concentration (gas/ vapour/aerosol/particulates) that may arise when handling the product.

**Recommended:** Avoid breathing of vapours, mists or spray. Select and use respirators in accordance with AS/NZS 1715/1716. When mists or vapours exceed the exposure standards then the use of the following is recommended: Approved respirator with organic vapour and dust/mist (Type P1) filters. Filter capacity and respirator type depends on exposure level.

**Refer to standards:**

Respiratory protection:AS/NZS 1715 and AS/NZS 1716
Gloves:AS/NZS 2161.1
Eye protection:AS/NZS 1336 and AS/NZS 1337

## Section 9. Physical and chemical properties

**Appearance**

| | |
|---|---|
| **Physical state** | Liquid. Clear and Bright |
| **Colour** | Pale colour. Yellow. to Red. |
| **Odour** | Hydrocarbon. |
| **Odour threshold** | Not available. |
| **pH** | Not available. |
| **Melting point** | Not available. |
| **Boiling point** | 30 to 210°C (86 to 410°F) |
| **Flash point** | Closed cup: <-40°C (<-40°F) |
| **Evaporation rate** | Not available. |
| **Flammability (solid, gas)** | Not applicable. Based on - Physical state |
| **Lower and upper explosive (flammable) limits** | Lower: 1.4%<br>Upper: 7.6% |
| **Vapour pressure** | 30.1 to 100.3 kPa (225.6 to 752 mm Hg) |
| **Vapour density** | >1 [Air = 1] |
| **Relative density** | Not available. |
| **Density** | 710 to 750 kg/m³ (0.71 to 0.75 g/cm³) |
| **Solubility** | insoluble in water. |
| **Partition coefficient: n-octanol/water** | Not available. |
| **Auto-ignition temperature** | >350°C (>662°F) |
| **Decomposition temperature** | Not available. |
| **Viscosity** | Kinematic: 0.4 to 0.55 $mm^2/s$ (0.4 to 0.55 cSt) at 40°C |
| **Remarks** | Reid vapor pressure (RVP): 55 to 100 kPa (40 °C) |

## Section 10. Stability and reactivity

| | |
|---|---|
| **Reactivity** | No specific test data available for this product. Refer to Conditions to avoid and Incompatible materials for additional information. |
| **Chemical stability** | The product is stable. |
| **Possibility of hazardous reactions** | Under normal conditions of storage and use, hazardous reactions will not occur. Under normal conditions of storage and use, hazardous polymerisation will not occur. |
| **Conditions to avoid** | Avoid all possible sources of ignition (spark or flame). Avoid excessive heat. |
| **Incompatible materials** | Reactive or incompatible with the following materials: oxidising 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 | Result | Species | Dose | Exposure |
|---|---|---|---|---|
| Gasoline | LC50 Inhalation Vapour | Rat | >7630 mg/m³ Nominal | 4 hours |
| | LC50 Inhalation Vapour | Rat | >5610 mg/m³ analytical | 4 hours |
| | LD50 Dermal | Rabbit | >2000 mg/kg | - |
| | LD50 Oral | Rat | >5000 mg/kg | - |
| diisopropyl ether | LC50 Inhalation Vapour | Rat | 40.5 mg/m³ | 1 hours |
| | LD50 Dermal | Rabbit | 2000 mg/kg | - |
| | LD50 Oral | Rat | 8470 mg/kg | - |
| 2-methylpropan-2-ol | LC50 Inhalation Vapour | Rat | >10000 ppm | 4 hours |
| | LD50 Oral | Rabbit | 3559 mg/kg | - |
| | LD50 Oral | Rat | 2743 mg/kg | - |
| tert-butyl methyl ether | LC50 Inhalation Vapour | Rat | 85 mg/l | 4 hours |
| | LD50 Dermal | Rat | >2000 mg/kg | - |
| | LD50 Oral | Rat | >2000 mg/kg | - |

#### Irritation/Corrosion

| Product/ingredient name | Result | Species | Score | Exposure | Observation |
|---|---|---|---|---|---|
| Gasoline | Skin - Irritant | Rabbit | - | - | - |
| | Eyes - Non-irritating to the eyes. | Rabbit | - | - | - |
| tert-butyl methyl ether | Skin - Irritation | Rabbit | - | - | - |
| | Eyes - Non-irritating to the eyes. | Rabbit | - | - | - |

**Skin** Causes skin irritation.

**Skin** Not classified. Based on available data, the classification criteria are not met.

#### Mutagenicity

| Product/ingredient name | Test | Experiment | Result |
|---|---|---|---|
| Gasoline | Equivalent to OECD 476 | Experiment: In vitro<br>Subject: Mammal - species unspecified | Negative |
| | Equivalent to OECD 471 | Experiment: In vitro<br>Subject: Non-mammalian species | Negative |
| | EPA OPPTS 870.5395 | Experiment: In vivo<br>Subject: Unspecified<br>Cell: Germ | Negative |
| | Equivalent to OECD 475 | Experiment: In vivo | Negative |

| | | | |
|---|---|---|---|
| | | Subject: Unspecified<br>Cell: Germ | |
| tert-butyl methyl ether | EU B 13/14 | Experiment: In vitro<br>Subject: Non-mammalian species | Negative |
| | OECD 471 | Experiment: In vitro<br>Subject: Non-mammalian species | Negative |
| | OECD 476 | Experiment: In vitro<br>Subject: Non-mammalian species | Negative |
| | Equivalent to OECD 473 | Experiment: In vitro<br>Subject: Non-mammalian species | Negative |
| | Equivalent to OECD 486 | Experiment: In vivo<br>Subject: Unspecified<br>Cell: Somatic | Negative |
| | Equivalent to EPA OPPTS 870.5385 | Experiment: In vivo<br>Subject: Unspecified<br>Cell: Somatic | Negative |
| | Equivalent to EPA OPPTS 798.5385 | Experiment: In vivo<br>Subject: Unspecified<br>Cell: Somatic | Negative |

**Conclusion/Summary** May cause genetic defects.

**Carcinogenicity**

| Product/ingredient name | Result | Species | Dose | Exposure |
|---|---|---|---|---|
| Gasoline | Negative - Inhalation - Unspecified | Rat | - | 113 weeks |
| | Negative - Dermal - Unspecified | Mouse | - | 102 weeks |
| tert-butyl methyl ether | Positive - Inhalation - Unspecified | Rat | - | 2 years |

**Conclusion/Summary** May cause cancer

**Reproductive toxicity**

| Product/ingredient name | Maternal toxicity | Fertility | Developmental toxin | Species | Dose | Exposure |
|---|---|---|---|---|---|---|
| Gasoline | - | Negative | - | Rat | Inhalation | 2 generation |
| | - | - | Negative | Rat | Inhalation | 14 days |
| tert-butyl methyl ether | - | Negative | - | Rat | Inhalation | 2 generation |
| | - | - | Negative | Rat | Inhalation | 9 days |

**Specific target organ toxicity (single exposure)**

| Name | Category | Route of exposure | Target organs |
|---|---|---|---|
| Gasoline | Category 3 | - | Narcotic effects |
| Benzene | Category 3 | - | Respiratory tract irritation |
| | Category 3 | | Narcotic effects |
| diisopropyl ether | Category 3 | - | Narcotic effects |

**Specific target organ toxicity (repeated exposure)**

| Name | Category | Route of exposure | Target organs |
|---|---|---|---|
| Benzene | Category 1 | - | blood system |

# Section 11. Toxicological information

## Aspiration hazard

| Name | Result |
|---|---|
| Gasoline | ASPIRATION HAZARD - Category 1 |

**Information on likely routes of exposure** Routes of entry anticipated: Dermal, Inhalation.

## Potential acute health effects

**Eye contact** No known significant effects or critical hazards.

**Inhalation** Can cause central nervous system (CNS) depression. May cause drowsiness or dizziness.

**Skin contact** Causes skin irritation.

**Ingestion** Irritating to mouth, throat and stomach. Aspiration hazard if swallowed -- harmful or fatal if liquid is aspirated into lungs.

## Symptoms related to the physical, chemical and toxicological characteristics

**Eye contact** Adverse symptoms may include the following:
pain or irritation
watering
redness

**Inhalation** Adverse symptoms may include the following:
nausea or vomiting
headache
drowsiness/fatigue
dizziness/vertigo
unconsciousness

**Skin contact** Adverse symptoms may include the following:
irritation
redness

**Ingestion** Adverse symptoms may include the following:
nausea or vomiting

## Delayed and immediate effects as well as chronic effects from short and long-term exposure

**Eye contact** Vapour, mist or fume may cause eye irritation. Exposure to vapour, mist or fume may cause stinging, redness and watering of the eyes.

**Inhalation** Vapour, mist or fume may irritate the nose, mouth and respiratory tract.

**Skin contact** Prolonged or repeated contact can defat the skin and lead to irritation, cracking and/or dermatitis.

**Ingestion** If swallowed, may irritate the mouth, throat and digestive system. If swallowed, may cause abdominal pain, stomach cramps, nausea, vomiting, diarrhoea, dizziness and drowsiness.

**General** Solvent "sniffing" (abuse) or intentional overexposure to vapours can produce serious central nervous system effects, including unconsciousness, and possibly death.

**Carcinogenicity** May cause cancer. Risk of cancer depends on duration and level of exposure.

**Mutagenicity** May cause genetic defects.

**Teratogenicity** No known significant effects or critical hazards.

**Developmental effects** No known significant effects or critical hazards.

**Fertility effects** No known significant effects or critical hazards.

## Numerical measures of toxicity

### Acute toxicity estimates

| Route | ATE value |
|---|---|

| | |
|---|---|
| Inhalation (vapours) | 1156.79 mg/l |

**Other information**

Gasoline - Excess exposure to vapors may produce headaches, dizziness, nausea, drowsiness, irritation of eyes, nose and throat and central nervous system depression. Aspiration of this material into the lungs can cause chemical pneumonia and can be fatal. Aspiration into the lungs can occur while vomiting after ingestion of this product. Inhalation of unleaded gasoline vapors did not produce birth defects in laboratory animals. Ingestion of this material can cause gastrointestinal irritation and diarrhea.

In a long-term inhalation study of whole unleaded gasoline vapors, exposure-related kidney damage and kidney tumors were observed in male rats. Similar kidney effects were not seen in female rats or in mice. At the highest exposure level (2056 ppm), female mice had an increased incidence of liver tumors. Results from subsequent scientific studies have shown that a broad variety of chemicals cause these kidney effects only in the male rat. Further studies have discovered the means by which the physiology of the male rat uniquely predispose it to these effects. Consequently, the Risk Assessment Forum of the Environmental Protection Agency has recognized that these responses are not predictive of a human health hazard. The liver tumors that were increased in the high-dose female mice are likewise of questionable significance because of their high spontaneous occurrence even without chemical exposure and because the rate of their occurrence is accelerated by a broad spectrum of chemicals not commonly considered to be carcinogens (e.g., phenobarbital).
Thus, the significance of the mouse liver tumor response in terms of human health is questionable.

Gasoline is a complex mixture of hydrocarbons and contains benzene (typically no more than 2 volume%), toluene, and xylene. Chronic exposure to high levels of benzene has been shown to cause cancer (leukemia) in humans and other adverse blood effects (anemia). Benzene is considered a human carcinogen by IARC, NTP and OSHA. Over exposure to xylene and toluene can cause irritation to the upper respiratory tract, headache and narcosis. Some liver damage and lung inflammation were seen in chronic studies on xylene in guinea pigs but not in rats.

Solvent "sniffing" (abuse) or intentional overexposure to vapors can produce serious central nervous system effects, including unconsciousness, and possibly death.

Gasoline: Additional toxicity information on components.

Overexposure to n-hexane may cause progressive and potentially irreversible damage to the peripheral nervous system, particularly in the arms and legs.
Studies in occupationally exposed individuals indicate that toluene exposure has been associated with impaired color vision and decreased performance in some neurobehavioral tests.
Prolonged high level exposure to toluene or xylene has caused some degree of hearing loss in experimental animals.
Inhalation of very high concentrations of gasoline vapors and some of its components can result in cardiac sensitization and irregular heartbeats, leading to potentially fatal changes in heart rhythms. Injection of adrenaline-like agents may enhance this effect.

Benzene: Acute toxicity of benzene results primarily from depression of the central nervous system (CNS). Inhalation of concentrations over 50 ppm can produce headache, lassitude, weariness, dizziness, drowsiness, or excitation. Exposure to very high levels can result in unconsciousness and death.

## Section 11. Toxicological information

Benzene: Long-term overexposure to benzene has been associated with certain types of leukemia in humans. In addition, the International Agency for Research on Cancer (IARC), the National Toxicology Program, and OSHA consider benzene to be a human carcinogen. Chronic exposures to high levels of benzene have been reported to cause adverse blood effects including anemia. Benzene exposure can occur by inhalation and absorption through the skin.
Inhalation and forced feeding studies of benzene in laboratory animals have produced a carcinogenic response in a variety of organs, including possibly leukemia, other adverse effects on the blood, chromosomal changes and some effects on the immune system. Exposure to benzene at levels up to 300 ppm did not produce birth defects in animal studies; however, exposure to higher dosage levels resulted in a reduction of body weight of the rat pups (fetotoxicity). Changes in the testes have been observed in mice exposed to benzene at 300 ppm, but reproductive performance was not altered in rats exposed to benzene at the same level. Aspiration of this material into the lungs can cause chemical pneumonia and can be fatal. Aspiration into the lungs can occur while vomiting after ingestion of this material.

## Section 12. Ecological information

**Toxicity**

| Product/ingredient name | Result | Species | Exposure |
|---|---|---|---|
| Gasoline | Acute EC50 15.41 mg/l Nominal Fresh water | Micro-organism | 40 hours |
| | Acute EL50 3.1 mg/l Nominal Fresh water | Algae | 72 hours |
| | Acute EL50 3.7 mg/l Nominal Fresh water | Algae | 96 hours |
| | Acute EL50 4.5 mg/l Nominal Fresh water | Daphnia | 48 hours |
| | Acute LL50 10 mg/l Nominal Fresh water | Fish | 96 hours |
| | Acute LL50 8.2 mg/l Nominal Fresh water | Fish | 96 hours |
| | Acute NOELR 0.5 mg/l Nominal Fresh water | Algae | 72 hours |
| | Acute NOELR 0.5 mg/l Nominal Fresh water | Daphnia | 48 hours |
| | Chronic EL50 10 mg/l Nominal Fresh water | Daphnia | 21 days |
| | Chronic EL50 >40 mg/l Nominal Fresh water | Daphnia | 21 days |
| | Chronic EL50 10 mg/l Nominal Fresh water | Fish | 21 days |
| | Chronic LL50 5.2 mg/l Nominal Fresh water | Fish | 14 days |
| | Chronic NOELR 2.6 mg/l Nominal Fresh water | Daphnia | 21 days |
| | Chronic NOELR 16 mg/l Nominal Fresh water | Daphnia | 21 days |
| | Chronic NOELR 2.6 mg/l Nominal Fresh water | Fish | 14 days |
| | Chronic NOELR 2.6 mg/l Nominal Fresh water | Fish | 21 days |
| | Chronic PNEC >0.4 mg/kg | soil, plants | - |
| tert-butyl methyl ether | Acute EC50 472 mg/l Fresh water | Daphnia | 48 hours |
| | Acute LC50 200 mg/l Marine water | Crustaceans | 96 hours |
| | Acute LC50 672 mg/l Fresh water | Fish | 96 hours |
| | Acute LC50 574 mg/l Marine water | Fish | 96 hours |
| | Chronic NOEC 26 mg/l Marine water | Crustaceans | 28 days |
| | Chronic NOEC 51 mg/l Fresh water | Daphnia | 21 days |

# Section 12. Ecological information

**Conclusion/Summary** Toxic to aquatic life with long lasting effects.

## Persistence and degradability

Expected to be biodegradable. Non-persistent per IMO criteria

| Product/ingredient name | Test | Result | Dose | Inoculum |
|---|---|---|---|---|
| tert-butyl methyl ether | not guideline | 100 % - 1.25 days | - | - |
| | Modelled data | 61 to 69 % - 151 days | - | - |
| | OECD 301 D | 9.24 % - Not readily - 28 days | - | - |
| | OECD 301 D | 1.8 % - Not readily - 28 days | - | - |
| | OECD 301 D | 0 % - Not readily - 28 days | - | - |
| | Modelled data | 0 % - 250 days | - | - |

| Product/ingredient name | Aquatic half-life | Photolysis | Biodegradability |
|---|---|---|---|
| Gasoline | - | - | Inherent |

## Bioaccumulative potential

This product is not expected to bioaccumulate through food chains in the environment.

| Product/ingredient name | $LogP_{ow}$ | BCF | Potential |
|---|---|---|---|
| Gasoline | 2 to 7 | - | high |
| Benzene | 2.13 | 11 | low |
| diisopropyl ether | 2.4 | - | low |
| 2-methylpropan-2-ol | 0.317 | - | low |
| tert-butyl methyl ether | 1.04 | 1.5 | low |

## Mobility in soil

**Soil/water partition coefficient ($K_{OC}$)** Not available.

**Mobility** Spillages may penetrate the soil causing ground water contamination.

**Other ecological information** Spills may form a film on water surfaces causing physical damage to organisms. Oxygen transfer could also be impaired.

# Section 13. Disposal considerations

**Disposal methods** The generation of waste should be avoided or minimised wherever possible. Significant quantities of waste product residues should not be disposed of via the foul sewer but processed in a suitable effluent treatment plant. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. 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. 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. Vapour 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 spilt material and runoff and contact with soil, waterways, drains and sewers.

**Special Precautions for Landfill or Incineration** No additional special precautions identified.

## Section 14. Transport information

| | ADG | IMDG | IATA |
|---|---|---|---|
| **UN number** | UN1203 | UN1203 | UN1203 |
| **UN proper shipping name** | MOTOR SPIRIT or GASOLINE or PETROL | MOTOR SPIRIT or GASOLINE or PETROL. Marine pollutant | MOTOR SPIRIT or GASOLINE or PETROL |
| **Transport hazard class(es)** | 3 | 3 | 3 |
| **Packing group** | II | II | II |
| **Environmental hazards** | No. | Yes. | Yes. The environmentally hazardous substance mark is not required. |
| **Additional information** | **Hazchem code** 3YE **Initial emergency response guide** 14 | The marine pollutant mark is not required when transported in sizes of ≤5 L or ≤5 kg. **Emergency schedules** F-E, S-E | The environmentally hazardous substance mark may appear if required by other transportation regulations. |

**Special precautions for user** Not available.

**Transport in bulk according to IMO instruments** **Proper shipping name** MARPOL Annex 1 rules apply for bulk shipments by sea.
Category: gasoline and spirits

## Section 15. Regulatory information

**Standard for the Uniform Scheduling of Medicines and Poisons**

Not scheduled. When packed in containers having capacity of greater than 20 litres.

S5. When packed in containers having capacity of less than 20 litres.

**Model Work Health and Safety Regulations - Scheduled Substances**

| Ingredient name | Schedule |
|---|---|
| Benzene | Restricted carcinogen [All uses involving benzene as a feedstock containing more than 50% of benzene by volume; Restricted use - Genuine research or analysis; For spray painting if the substance contains more than 1% by volume] |

**Montreal Protocol**

| Ingredient name | List name | Status |
|---|---|---|
| Not listed. | | |

**Stockholm Convention on Persistent Organic Pollutants**

| Ingredient name | List name | Status |
|---|---|---|
| Not listed. | | |

**Rotterdam Convention on Prior Informed Consent (PIC)**

## Section 15. Regulatory information

| Ingredient name | List name | Status |
|---|---|---|
| Not listed. | | |

**International lists**

**National inventory**

| | |
|---|---|
| **REACH Status** | For the REACH status of this product please consult your company contact, as identified in Section 1. |
| **Australia inventory (AICS)** | Contact local supplier or distributor. |
| **Canada inventory** | Not determined. |
| **China inventory (IECSC)** | Not determined. |
| **Japan inventory (ENCS)** | Not determined. |
| **Korea inventory (KECI)** | At least one component is not listed. |
| **Philippines inventory (PICCS)** | Not determined. |
| **Taiwan Chemical Substances Inventory (TCSI)** | Not determined. |
| **United States inventory (TSCA 8b)** | Not determined. |

## Section 16. Any other relevant information

**History**

| | |
|---|---|
| **Date of printing** | 5/26/2021 |
| **Date of issue/Date of revision** | 5/26/2021 |
| **Date of previous issue** | 5/25/2021 |
| **Version** | 4.01 |
| **Prepared by** | Product Stewardship |
| **Key to abbreviations** | ADG = Australian Dangerous Goods<br>ATE = Acute Toxicity Estimate<br>BCF = Bioconcentration Factor<br>GHS = Globally Harmonized System of Classification and Labelling of Chemicals<br>IATA = International Air Transport Association<br>IBC = Intermediate Bulk Container<br>IMDG = International Maritime Dangerous Goods<br>LogPow = logarithm of the octanol/water partition coefficient<br>MARPOL = International Convention for the Prevention of Pollution From Ships, 1973 as modified by the Protocol of 1978. ("Marpol" = marine pollution)<br>NOHSC = National Occupational Health and Safety Commission<br>REACH = Registration, Evaluation, Authorisation and Restriction of Chemicals Regulation [Regulation (EC) No. 1907/2006]<br>STEL = Short term exposure limit<br>SUSMP = Standard Uniform Schedule of Medicine and Poisons<br>UN = United Nations<br>TWA = Time weighted average<br>VOC = Volatile Organic Compound<br>SADT = Self-Accelerating Decomposition Temperature<br>Varies = may contain one or more of the following 64741-88-4, 64741-89-5, 64741-95-3, 64741-96-4, 64742-01-4, 64742-44-5, 64742-45-6, 64742-52-5, 64742-53-6, 64742-54-7, 64742-55-8, 64742-56-9, 64742-57-0, 64742-58-1, 64742-62-7, 64742-63-8, 64742-65-0, 64742-70-7, 72623-85-9, 72623-86-0, 72623-87-1 |

**Procedure used to derive the classification**

## Section 16. Any other relevant information

| Classification | Justification |
|---|---|
| FLAMMABLE LIQUIDS - Category 1 | On basis of test data |
| SKIN CORROSION/IRRITATION - Category 2 | Calculation method |
| GERM CELL MUTAGENICITY - Category 1B | Expert judgment |
| CARCINOGENICITY - Category 1B | Expert judgment |
| SPECIFIC TARGET ORGAN TOXICITY - SINGLE EXPOSURE (Narcotic effects) - Category 3 | Calculation method |
| ASPIRATION HAZARD - Category 1 | Calculation method |

**Indicates information that has changed from previously issued version.**

**Notice to reader**

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