

**FuelResolve™**

Safety Data Sheet according to Reg. (EU) No 2015/830

Version: 1.0

Revision Date: 10/10/22

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Fuelcare Limited encourages and expects you to read and understand the entire MSDS, as there is important information throughout the document. We expect you to follow the precautions identified in this document unless your use conditions would necessitate other appropriate methods or actions.

**SECTION 1: IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING****1.1 Product identifier****Product name:** FuelResolve™**1.2 Relevant identified uses of the substance or mixture and uses advised against Identified uses:** Fuel additive.**1.3 Details of the supplier of the safety data sheet****COMPANY IDENTIFICATION**

Fuelcare Limited

Mercury House

Shrewsbury Business Park

Shrewsbury

SY2 6LG

UNITED KINGDOM

**Customer Information Number:** +44 (0)1743 360784**Customer Information Email:** info@fuelcare.com**1.4 EMERGENCY TELEPHONE NUMBER****Emergency Contact Number:** +44 (0)1743 360784

**SECTION 2: HAZARDS IDENTIFICATION****2.1 Classification of the substance or mixture: mixture****Classification according to Regulation (EC) No 1272/2008:**

Eye irrit 2, H319  
Carc. 2, H351  
STOT SE 3, H336  
Aquatic Chronic 2, H411

For the full text of the H-Statements mentioned in this Section, see Section 16.

**2.2 Label elements****Labelling according to Regulation (EC) No 1272/2008:****Hazard pictograms****Signal word: WARNING****Hazard statements**

H319	Causes serious eye irritation.
H351	Suspected of causing cancer.
H336	May cause drowsiness or dizziness.
H411	Toxic to aquatic life with long lasting effects.

**Precautionary statements**

P201	Obtain special instructions before use.
P273	Avoid release to the environment.
P280	Wear protective gloves: > 8 hours (breakthrough time): Viton®; 1 – 4 hours (breakthrough time): nitrile rubber. Wear eye or face protection: Recommended: splash goggles. Wear protective clothing.
P304 + P340 + P312	IF INHALED: Remove person to fresh air and keep comfortable for breathing. Call a POISON CENTRE/doctor if you feel unwell.
P405	Store locked up.
P501	Dispose of contents and container in accordance with all local, regional, national and international regulations.

**Supplemental information**

<b>Contains</b>	Hydrocarbons C10, Aromatics, <1% Napthalene, [Solvent naptha (petroleum), heavy arom.]; naphthalene.
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**2.3 Other hazards**

Contains 3,6,9-triazaundecamethylenediamine. May produce an allergic reaction. Repeated exposure may cause skin dryness or cracking.

**SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS**
**3.2 Mixtures**

This product is a mixture.

CASRN / EC-No. / Index-No.	REACH Registration Number	Concentration	Component	Classification: REGULATION (EC) No 1272/2008
EC: 265-198-5, [918-811-1] CAS: 64742-94-5 Index: 649-424-00-3	01-2119463583-34	≥25 - ≤50	Hydrocarbons C10, Aromatics, <1% Napthalene, [Solvent naphth (petroleum), heavy arom.]	STOT SE 3, H336 Asp. Tox. 1, H304 Aquatic Chronic 2, H411 EUH066
EC: 265-198-5, [919-284-0] CAS: 64742-94-5	01-2119463588-24	≥10 - ≤25	Hydrocarbons, C10, aromatics, >1% naphthalene [Solvent naphtha (petroleum), heavy arom. ]	STOT SE 3, H336 Asp. Tox. 1, H304 Aquatic Chronic 2, H411 EUH066
EC: 202-436-9 CAS: 95-63-6 Index: 601-043-00-3	Compliant	≤3	1,2,4-trimethylbenzene	Flam. Liq. 3, H226 Acute Tox. 4, H332 Skin Irrit. 2, H315 Eye Irrit. 2, H319 STOT SE 3, H335 Aquatic Chronic 2, H411
EC: 202-049-5 CAS: 91-20-3 Index: 601-052-00-2	Compliant	≤3	naphthalene	Acute Tox. 4, H302 Carc. 2, H351 Aquatic Acute 1, H400 (M=1) Aquatic Chronic 1, H410 (M=1)
EC: 204-884-0, 211-989-5 [907-745-9] CAS: 128-39-2, 732-26-3	01-2119538013-51	<3	Reaction mass of 2,6-di-tert-butylphenol and 2,4,6-tri-tert-butylphenol	Eye Dam. 1, H318 Aquatic Acute 1, H400 (M=1) Aquatic Chronic 1, H410 (M=1)

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EC: 203-986-2 CAS: 112-57-2 Index: 612-060-00-0	01-2119487290-37	≤0.3	3,6, 9-triazaundecamethylenediamine	Acute Tox. 4, H302 Acute Tox. 4, H312 Skin Corr. 1B, H314 Eye Dam. 1, H318 Skin Sens. 1, H317 Aquatic Chronic 2, H411
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For the full text of the H-Statements mentioned in this Section, see Section 16.

## SECTION 4: FIRST AID MEASURES

### 4.1 Description of first aid measures

**Inhalation:** Remove victim to fresh air and keep at rest in a position comfortable for breathing. If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Get medical attention. If necessary, call a poison centre or doctor. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband. In case of inhalation of decomposition products in a fire, symptoms may be delayed. The exposed person may need to be kept under medical surveillance for 48 hours.

**Skin contact:** Wash skin thoroughly with soap and water or use recognised skin cleanser. Remove contaminated clothing and shoes. Continue to rinse for at least 10 minutes. Get medical attention. Wash clothing before reuse. Clean shoes thoroughly before reuse.

**Eye contact:** Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Continue to rinse for at least 10 minutes. Get medical attention.

**Ingestion:** Remove dentures if any. Wash out mouth with water. Stop if the exposed person feels sick as vomiting may be dangerous. Remove victim to fresh air and keep at rest in a position comfortable for breathing. Do not induce vomiting unless directed to do so by medical personnel. If vomiting occurs, the head should be kept low so that vomit does not enter the lungs. Get medical attention. If necessary, call a poison centre or doctor. Never give anything by mouth to an unconscious person. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.

**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.

#### 4.2 Most important symptoms and effects, both acute and delayed:

**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, dryness, cracking.

**Ingestion:** No specific data.

#### 4.3 Indication of any immediate medical attention and special treatment needed

**Notes to physician:** In case of inhalation of decomposition products in a fire, symptoms may be delayed. The exposed person may need to be kept under medical surveillance for 48 hours.

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### SECTION 5: FIREFIGHTING MEASURES

#### 5.1 Extinguishing media

**Suitable extinguishing media:** Use an extinguishing media appropriate for the surrounding fire.

**Unsuitable extinguishing media:** No data available

**5.2 Special hazards arising from the substance or mixture:** In a fire or if heated, a pressure increase will occur and the container may burst. This material is toxic to aquatic life with long lasting effects. Fire water contaminated with this material must be contained and prevented from being discharged to any waterway, sewer or drain.

**Hazardous thermal decomposition products:** Decomposition products may include the following materials: carbon dioxide, carbon monoxide, nitrogen oxides. Aliphatic carboxylic acid.: This material increases the risk of fire and may aid combustion.

#### 5.3 Advice for firefighters

**Special protective actions for fire-fighters:** Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training.

**Special protective equipment for firefighters:** Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode. Clothing for fire-fighters (including helmets, protective boots and gloves) conforming to European standard EN 469 will provide a basic level of protection for chemical incidents

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**SECTION 6: ACCIDENTAL RELEASE MEASURES****6.1 Personal precautions, protective equipment and emergency procedures:**

**For non-emergency personnel:** No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilt material. Avoid breathing vapour or mist. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment.

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

**6.2 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. Collect spillage.

**6.3 Methods and materials for containment and cleaning up:**

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

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

**6.4 Reference to other sections:** See Section 1 for emergency contact information. See Section 8 for information on appropriate personal protective equipment. See Section 13 for additional waste treatment information.

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**SECTION 7: HANDLING AND STORAGE****7.1 Precautions for safe handling:**

**Protective measures:** 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 ingest. Avoid breathing vapour or mist. Avoid release to the environment. 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. Empty containers retain product residue and can be hazardous. Do not reuse container.

**Advice on general occupational hygiene:** Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Remove contaminated clothing and protective equipment before entering eating areas. See also Section 8 for additional information on hygiene measures.

**7.2 Conditions for safe storage, including any incompatibilities:**

**Storage:** Store in accordance with local regulations. Store in a dry, cool and well-ventilated area, away from incompatible materials (see Section 10). Store locked up. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabeled containers. Use appropriate containment to avoid environmental contamination.

**7.3 Specific end use(s):** See the technical data sheet on this product for further information.

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**SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION**
**8.1 Control parameters**

Product/ingredient name	Exposure limit values
Hydrocarbons C10, Aromatics, <1% Naphthalene, [Solvent naphtha (petroleum), heavy arom.]	Supplier/Manufacturer (Europe, 2015). EU HSPA (RCP Aromatic solvents 180 - 215): 151 mg/m <sup>3</sup> 8 hours.
Hydrocarbons, C10, aromatics, >1% naphthalene [Solvent naphtha (petroleum), heavy arom.]	Supplier/Manufacturer (Europe, 2015). EU HSPA (RCP Aromatic solvents 180 - 215): 151 mg/m <sup>3</sup> 8 hours.
1,2,4-trimethylbenzene	EH40/2005 WELs (United Kingdom (UK), 12/2011). TWA: 25 ppm, 0 times per shift, 8 hours. TWA: 125 mg/m <sup>3</sup> , 0 times per shift, 8 hours.
naphthalene	EU OEL (Europe, 12/2017). Notes: list of indicative occupational exposure limit values TWA: 10 ppm 8 hours. TWA: 50 mg/m <sup>3</sup> , 0 times per shift, 8 hours.

If this product contains ingredients with exposure limits, personal, workplace atmosphere or biological monitoring may be required to determine the effectiveness of the ventilation or other control measures and/or the necessity to use respiratory protective equipment. Reference should be made to monitoring standards, such as the following: European Standard EN 689 (Workplace atmospheres - Guidance for the assessment of exposure by inhalation to chemical agents for comparison with limit values and measurement strategy) European Standard EN 14042 (Workplace atmospheres - Guide for the application and use of procedures for the assessment of exposure to chemical and biological agents) European Standard EN 482 (Workplace atmospheres - General requirements for the performance of procedures for the measurement of chemical agents) Reference to national guidance documents for methods for the determination of hazardous substances will also be required.

Component	Type of Listing	Exposure	Value/Notation
Hydrocarbons C10, Aromatics, <1% Naphthalene, [Solvent naphtha (petroleum), heavy arom.]	DNEL	Long term Dermal	12.5 mg/ kg bw/day
	DNEL	Long term Inhalation	151 mg/m <sup>3</sup>
	DNEL	Long term Dermal	7.5 mg/kg bw/day
	DNEL	Long term Inhalation	32 mg/m <sup>3</sup>
	DNEL	Long term Oral	7.5 mg/kg bw/day
Hydrocarbons, C10, aromatics, >1% naphthalene [Solvent naphtha (petroleum), heavy arom.]	DNEL	Long term Dermal	12.5 mg/ kg bw/day
	DNEL	Long term Inhalation	151 mg/m <sup>3</sup>
	DNEL	Long term Dermal	7.5 mg/kg bw/day
	DNEL	Long term Inhalation	32 mg/m <sup>3</sup>
	DNEL	Long term Oral	7.5 mg/kg bw/day
1,2,4-trimethylbenzene	DNEL	Short term Inhalation	100 mg/m <sup>3</sup>
	DNEL	Short term Inhalation	100 mg/m <sup>3</sup>
	DNEL	Long term Dermal	16171 mg/ kg bw/day
	DNEL	Long term Inhalation	100 mg/m <sup>3</sup>
	DNEL	Long term Inhalation	100 mg/m <sup>3</sup>
	DNEL	Short term Inhalation	29.4 mg/m <sup>3</sup>
	DNEL	Short term Inhalation	29.4 mg/m <sup>3</sup>
	DNEL	Long term Dermal	9512 mg/ kg bw/day
	DNEL	Long term Inhalation	29.4 mg/m <sup>3</sup>
	DNEL	Long term Oral	15 mg/ kg bw/day
	DNEL	Long term Inhalation	29.4 mg/m <sup>3</sup>
naphthalene	DNEL	Long term Dermal	3.57 mg/ kg bw/day
	DNEL	Long term Inhalation	25 mg/m <sup>3</sup>
	DNEL	Long term Inhalation	25 mg/m <sup>3</sup>
Reaction mass of 2,6-di-tert-butylphenol and 2,4,6-tri-tert-butylphenol	DNEL	Long term Dermal	0.5 mg/ kg bw/day
	DNEL	Long term Inhalation	3.5 mg/m <sup>3</sup>
3,6,9-triazaundecamethylenediamine	DNEL	Short term Inhalation	6940 mg/m <sup>3</sup>
	DNEL	Long term Dermal	0.74 mg/ kg bw/day
	DNEL	Long term Inhalation	1.29 mg/m <sup>3</sup>
	DNEL	Short term Dermal	10 mg/ kg bw/day
	DNEL	Short term Inhalation	2071 mg/m <sup>3</sup>
	DNEL	Short term Oral	26 mg/ kg bw/day
	DNEL	Short term Oral	1.29 mg/cm <sup>2</sup>
	DNEL	Long term Dermal	0.32 mg/ kg bw/day
	DNEL	Long term Inhalation	0.38 mg/m <sup>3</sup>
	DNEL	Long term Oral	0.53 mg/ kg bw/day
1,2,4-trimethylbenzene	PNEC	Fresh water	0.12 mg/l

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	PNEC	Marine	0.12 mg/l
	PNEC	Sewage treatment plant	2.41 mg/l
	PNEC	Fresh water sediment	13.56 mg/kg dwt
	PNEC	Marine water sediment	13.56 mg/kg dwt
	PNEC	Soil	2.34 mg/kg dwt
naphthalene	PNEC	Fresh water	2.4 µg/l
	PNEC	Marine	0.24 µg/l
	PNEC	Sewage treatment plant	2.9 mg/l
	PNEC	Fresh water sediment	67.2 µg/kg dwt
	PNEC	Marine water sediment	67.2 µg/kg dwt
	PNEC	Soil	53.3 µg/kg dwt
Reaction mass of 2, 6-di-tert-butylphenol and 2, 4, 6-tri-tert-butylphenol	-	Fresh water	0.3 µg/l
	-	Marine water	0.03 µg/l
	-	Fresh water sediment	0.09 mg/kg dwt
	-	Marine water sediment	0.009 mg/kg dwt
	-	Soil	0.044 mg/kg dwt
	-	Sewage treatment plant	2.4 mg/l
3,6,9-triazaundecamethylenediamine	PNEC	Fresh water	6.8 µg/l
	PNEC	Marine	0.68 µg/l
	PNEC	Sewage treatment plant	9.73 mg/l
	PNEC	Fresh water sediment	3.43 mg/kg dwt
	PNEC	Marine water sediment	0.343 mg/kg dwt
	PNEC	Soil	0.683 mg/kg dwt

## 8.2 Exposure controls

**Engineering controls:** Use only with adequate ventilation. Use process enclosures, local exhaust controls ventilation or other engineering controls to keep worker exposure to airborne contaminants below any recommended or statutory limits.

### 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:** Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists, gases or dusts. If contact is possible, the following protection should be worn, unless the assessment indicates a higher degree of protection: chemical splash goggles. Recommended: splash goggles.

**Hand protection:** Chemical-resistant, impervious gloves complying with an approved standard should be always worn when handling chemical products if a risk assessment indicates this is necessary. Considering the parameters specified by the glove manufacturer, check during use that the gloves are still retaining their protective properties. It should be noted that the time to breakthrough for any glove material may be different for different glove manufacturers. In the case of mixtures, consisting of several substances, the protection time of the gloves cannot be accurately estimated. > 8 hours (breakthrough time): Viton® 1 - 4 hours (breakthrough time): nitrile rubber.

**Body protection:** Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.

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

**Respiratory protection:** Based on the hazard and potential for exposure, select a respirator that meets the appropriate standard or certification. Respirators must be used according to a respiratory protection program to ensure proper fitting, training, and other important aspects of use. Recommended: organic vapour filter (Type A).

**Environmental exposure controls:** Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation. In some cases, fume scrubbers, filters or engineering modifications to the process equipment will be necessary to reduce emissions to acceptable levels.

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## SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

### 9.1 Information on basic physical and chemical properties

#### Appearance

<b>Physical state</b>	Liquid
<b>Colour</b>	Amber
<b>Odour</b>	Aromatic
<b>Odour Threshold</b>	No data available
<b>pH</b>	No data available
<b>Melting point/range</b>	No data available
<b>Freezing point</b>	No data available
<b>Initial boiling point and boiling range</b>	Lowest known value: 168.01°C (334.4°F) (1,2,4-trimethylbenzene). Weighted average: 204.4°C (399.9°F)
<b>Flash point</b>	Closed cup: 66°C (150.8°F) [DIN EN ISO 2719]
<b>Evaporation Rate</b>	Highest known value: 0.05 (Solvent naphtha (petroleum), heavy arom.) Weighted average: 0.05 compared with butyl acetate
<b>Flammability (solid, gas)</b>	No data available
<b>Upper/Lower explosion limit</b>	Greatest known range: Lower: 0.6% Upper: 7% (Solvent naphtha (petroleum), heavy arom.)
<b>Vapor Pressure</b>	Highest known value: 0.1 kPa (0.8 mm Hg) (at 20°C) (Solvent naphtha (petroleum), heavy arom.). Weighted average: 0.06 kPa (0.45 mm Hg) (at 20°C)
<b>Vapor Density</b>	Highest known value: 4.6 to 5.5 (Air = 1) (Solvent naphtha (petroleum), heavy arom.). Weighted average: 5.01 (Air = 1)
<b>Relative Density</b>	No data available Density: 0.925 g/cm <sup>3</sup> [15°C (59°F)]
<b>Solubility</b>	Easily soluble in the following materials: diethyl ether, acetone. Insoluble in the following materials: cold water, hot water.
<b>Partition coefficient: n- octanol/water</b>	No data available
<b>Auto-ignition temperature</b>	Lowest known value: 362°C (683.6°F) (Aliphatic carboxylic acid.).

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<b>Decomposition temperature</b>	No data available
<b>Viscosity</b>	Kinematic (40°C (104°F)): 0.77 cm <sup>2</sup> /s (77 cSt) [ISO 3104 / DIN 51562]
<b>Explosive properties</b>	No data available
<b>Oxidizing properties</b>	No data available

**9.2 Other information**

<b>Pour Point</b>	<-40 °C
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NOTE: The physical data presented above are typical values and should not be construed as a specification.

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**SECTION 10: STABILITY AND REACTIVITY**

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

**10.2 Chemical stability:** The product is stable.

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

**10.4 Conditions to avoid:** No data available

**10.5 Incompatible materials:** No data available

**10.6 Hazardous decomposition products:** Under normal conditions of storage and use, hazardous decomposition products should not be produced.

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**SECTION 11: TOXICOLOGICAL INFORMATION**

*Toxicological information appears in this section when such data is available.*

**11.1 Information on toxicological effects**
**Acute toxicity**

**Oral:** 31624.6 mg/kg

**Inhalation:** 487.5 mg/l

Product/Ingredient	Test	Species	Result Type	Dose
Hydrocarbons C10, Aromatics, <1% Naphthalene, [Solvent naphtha (petroleum), heavy arom.]	-	Rat	LC50 Inhalation Vapour	> 590 mg/m <sup>3</sup> 4 hours
	-	Rabbit	LD50 Dermal	> 2mL/kg
	-	Rabbit	LD50 Dermal	2000 mg/kg
	-	Rat	LDLo Oral	5mL/kg
Hydrocarbons, C10, aromatics, >1% naphthalene [Solvent naphtha (petroleum), heavy	-	Rat	LC50 Inhalation Vapour	> 590 mg/m <sup>3</sup> 4 hours
	-	Rabbit	LD50 Dermal	> 2mL/kg

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arom.]	-	Rabbit	LD50 Dermal	2000mg/kg
	-	Rat	LDLo Oral	5 mL/kg
naphthalene	-	Rat	LC50 Inhalation Vapour	> 340 mg/m <sup>3</sup> 1 hour
	-	Rabbit	LD50 Dermal	> 2000 mg/kg
	-	Rat	LD50 Dermal	> 2500 mg/kg
	-	Rat	LD50 Oral	490 mg/kg
Reaction mass of 2,6-di-tert-butylphenol and 2,4,6-tri-tert-butylphenol	OECD 402 Acute Dermal Toxicity	Rat – Male, Female	LD50 Dermal	> 2000 mg/kg
	OECD 401 Acute Oral Toxicity	Rat – Male, Female	LD50 Oral	2976 mg/kg
3,6, 9-triazaundecamethylenediamine	-	Rat	LD50 Dermal	1260 mg/kg
	-	Rat	LD50 Oral	2100 to 3990 mg/kg

**Irritation/Corrosion:**

Product/Ingredient	Test	Species	Result
Hydrocarbons C10, - Aromatics, <1% Naphthalene, [Solvent naphtha (petroleum), heavy arom.]	-	Rabbit	Skin – mild irritant
	-	Mammal – species unspecified	Eyes – mild irritant
Hydrocarbons, C10, - aromatics, >1% naphthalene [Solvent naphtha (petroleum), heavy arom.]	-	Rabbit	Skin – mild irritant
	-	Mammal – species unspecified	Eyes – mild irritant
Reaction mass of 2,6-di-tert-butylphenol and 2,4,6-tri-tert-butylphenol	OECD 404 Acute Dermal Irritation/Corrosion	Rabbit	Skin – Oedema 0
	OECD 405 Acute Eye Irritation/Corrosion	Rabbit	Eyes – Cornea opacity 3
	OECD 405 Acute Eye Irritation/Corrosion	Rabbit	Eyes – redness of the conjunctivae 3
3,6, 9-triazaundecamethylenediamine	-	Rabbit	Eyes – moderate irritant
	-	Rabbit	Skin – severe irritant

**Sensitisation**

Product/Ingredient	Test	Species	Result
Reaction mass of 2,6-di-tert-butylphenol and 2,4,6-tri-tert-butylphenol	-	Guinea Pig	Not sensitising

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3,6, 9-triazaundecamethylenediamine	-	Guinea Pig	Sensitising
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**Potential chronic health effects**

Product/Ingredient	Test	Species	Result	Dose
3,6, 9-triazaundecamethylenediamine	-	Rat	LOAEL	43 mg/kg
	-	Rabbit	LOAEL	50 mg/kg

**Mutagenicity**

Product/Ingredient	Test	Experiment	Result
3,6, 9-triazaundecamethylenediamine	-	Experiment: In vivo Subject: Mammalian-Animal	Negative

**Reproductive toxicity**

Product/Ingredient	Test	Species	Result	Dose
3,6, 9-triazaundecamethylenediamine	-	Mammal – species unspecified	-	Oral: 970 NOAEL
	-	Mammal – species unspecified	-	Dermal: 161 NOAEL

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

**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, dryness, cracking.

**Ingestion:** No specific data.

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

**Potential Immediate Effects:** Not available.

**Potential Delayed Effects:** Not available.

**Long term exposure**

**Potential Immediate Effects:** Not available.

**Potential Delayed Effects:** Not available.

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

**Carcinogenicity:** Suspected of causing cancer. Risk of cancer depends on duration and level of exposure.

**Mutagenicity:** No known significant effects or critical hazards.

**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.

**SECTION 12: ECOLOGICAL INFORMATION**

Ecotoxicological information appears in this section when such data is available.

**12.1 Toxicity**

Product/Ingredient	Test	Species	Exposure	Result
Hydrocarbons C10, - Aromatics, <1% Naphthalene, [Solvent naphtha (petroleum), heavy arom.]	-	Algae	72 hours	Acute EC50 1 to 3 mg/l
	-	Daphnia	48 hours	Acute EC50 3 to 10 mg/l
	-	Fish	96 hours	Acute LC50 2 to 5 mg/l
Hydrocarbons, C10, - aromatics, >1% naphthalene [Solvent naphtha (petroleum), heavy arom.]	-	Algae	72 hours	Acute EC50 1 to 3 mg/l
	-	Daphnia	48 hours	Acute EC50 3 to 10 mg/l
	-	Fish	96 hours	Acute LC50 2 to 5 mg/l
1,2,4-trimethylbenzene	-	Fish - Pimephales promelas	96 hours	Acute LC50 7.72 mg/l
naphthalene	-	Daphnia - Water flea - Daphnia magna	48 hours	Acute EC50 1.96 mg/l Fresh water
	-	Crustaceans - Daggerblade grass shrimp - Palaemonetes pugio	48 hours	Acute LC50 2350 µg/l Marine water
	-	Fish - Oncorhynchus mykiss	96 hours	Acute LC50 1.6 mg/l
Reaction mass of 2,6-di-tert- butylphenol and 2,4,6-tri-tert- butylphenol	ECD 201 Alga, Growth Inhibition Test	Algae - S. capricornutum	72 hours	Acute EC50 4.9 mg/l Key data sources
	EU C.2 202 Daphnia sp. Acute Immobilisation Test	Daphnia	48 hours	Acute EC50 0.4 mg/l Key data sources
	EU C.1 203 Fish, Acute Toxicity Test	Fish - Oncorhynchus mykiss	96 hours	Acute LC50 0.3 mg/l Key data sources
3,6, 9- triazoundecamethylenediamine	-	Algae	72 hours	Acute EC50 6.8 mg/l
	-	Daphnia	48 hours	Acute EC50 24.1mg/l
	-	Fish	96 hours	Acute LC50 420 mg/l
	-	Algae	-	Acute NOEC 0.5 mg/l

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**12.2 Persistence and degradability**

Product/Ingredient	Aquatic half-life	Photolysis	Biodegradability
Hydrocarbons C10, Aromatics, <1% Naphthalene, [Solvent naphtha (petroleum), heavy arom.]	-	-	Inherent
Hydrocarbons, C10, aromatics, >1% naphthalene [Solvent naphtha (petroleum), heavy arom.]	-	-	Inherent
Reaction mass of 2,6-di-tert-butylphenol and 2,4,6-tri-tert-butylphenol	Fresh water 73.5 days, 20°C	<1 day(s)	Not readily
3,6, 9-triazaundecamethylenediamine	-3.16	-	Not readily

**12.3 Bioaccumulative potential**

Product/Ingredient	LogP <sub>ow</sub>	BCF	Potential
Hydrocarbons C10, Aromatics, <1% Naphthalene, [Solvent naphtha (petroleum), heavy arom.]	2.8 to 6.5	<100	Low
Hydrocarbons, C10, aromatics, >1% naphthalene [Solvent naphtha (petroleum), heavy arom.]	-	<100	Low
1,2,4-trimethylbenzene	4.09	275	Low
naphthalene	3.3	>100	Low
Reaction mass of 2,6-di-tert-butylphenol and 2,4,6-tri-tert-butylphenol	4.9	-	High
3,6, 9-triazaundecamethylenediamine	-3.16	-	Low

**12.4 Mobility in soil**

**Soil/water partition coefficient (K<sub>oc</sub>):** Not available

**Mobility:** Not available

**12.5 Results of PBT and vPvB assessment**

**PBT:** Not applicable

**vPvB:** Not applicable

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## 12.6 Other adverse effects

No known significant effects or critical hazards.

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## SECTION 13: DISPOSAL CONSIDERATIONS

### 13.1 Waste treatment methods

#### Product

**Methods of disposal:** The generation of waste should be avoided or minimised wherever possible. Disposal of this product, solutions and any by-products should always comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. Dispose of surplus and non- recyclable products via a licensed waste disposal contractor. Waste should not be disposed of untreated to the sewer unless fully compliant with the requirements of all authorities with jurisdiction.

**Hazardous Waste:** The classification of the product may meet the criteria for a hazardous waste.

#### Packaging

**Methods of disposal:** The generation of waste should be avoided or minimised wherever possible. Waste packaging should be recycled. Incineration or landfill should only be considered when recycling is not feasible.

**Special Precautions:** 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. Avoid dispersal of spilt material and runoff and contact with soil, waterways, drains and sewers.

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## SECTION 14: TRANSPORT INFORMATION

### Classification for ROAD and Rail transport (ADR/RID):

<b>14.1 UN number</b>	UN 3082
<b>14.2 UN proper shipping name</b>	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (Solvent naphtha (petroleum), heavy arom., naphthalene)
<b>14.3 Transport hazard class(es)</b>	9
<b>14.4 Packing group</b>	III
<b>14.5 Environmental group</b>	This product is not regulated as a dangerous good when transported in sizes of ≤5 L or ≤5 kg, provided the packagings meet the general provisions of 4.1.1.1, 4.1.1.2 and 4.1.1.4 to 4.1.1.8.
<b>14.6 Special precautions for user</b>	Hazard identification number 90 Limited quantity 5 L Special provisions 274, 335, 601, 375 Tunnel code (E)



**Classification for Inland Waterways transport (ADG):**

<b>14.1 UN number</b>	UN 3082
<b>14.2 UN proper shipping name</b>	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (Solvent naphtha (petroleum), heavy arom., naphthalene)
<b>14.3 Transport hazard class(es)</b>	9
<b>14.4 Packing group</b>	III
<b>14.5 Environmental group</b>	This product is not regulated as a dangerous good when transported in sizes of ≤5 L or ≤5 kg, provided the packagings meet the general provisions of 4.1.1.1, 4.1.1.2 and 4.1.1.4 to 4.1.1.8.
<b>14.6 Special precautions for user</b>	Special provisions 274, 335, 375, 601
<b>14.7 Transport in bulk according to Annex I or II of MARPOL 73/78 and the IBC or IGC Code</b>	

**Classification for Maritime transport (IMDG):**

<b>14.1 UN number</b>	UN 3082
<b>14.2 UN proper shipping name</b>	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (Solvent naphtha (petroleum), heavy arom., naphthalene). Marine pollutant (Solvent naphtha (petroleum), heavy arom., naphthalene)
<b>14.3 Transport hazard class(es)</b>	9
<b>14.4 Packing group</b>	III
<b>14.5 Environmental group</b>	This product is not regulated as a dangerous good when transported in sizes of ≤5 L or ≤5 kg, provided the packagings meet the general provisions of 4.1.1.1, 4.1.1.2 and 4.1.1.4 to 4.1.1.8.
<b>14.6 Special precautions for user</b>	Emergency schedules (EmS) F-A, S-F Special provisions 274, 335, 969

**Classification for AIR transport (IATA/ICAO):**

<b>14.1 UN number</b>	UN 3082
<b>14.2 UN proper shipping name</b>	Environmentally hazardous substance, liquid, n.o.s. (Solvent naphtha (petroleum), heavy arom., naphthalene)
<b>14.3 Transport hazard class(es)</b>	9
<b>14.4 Packing group</b>	III
<b>14.5 Environmental group</b>	Not applicable
<b>14.6 Special precautions for user</b>	No data available

This information is not intended to convey all specific regulatory or operational requirements/information relating to this product. Transportation classifications may vary by container volume and may be influenced by regional or country variations in regulations. Additional transportation system information can be obtained through an authorized sales or customer service representative. It is the responsibility of the transporting organization to follow all applicable laws, regulations and rules relating to the transportation of the

material.

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**SECTION 15: REGULATORY INFORMATION**
**15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture**
**REACH Regulation (EC) No 1907/2006**
**Annex XIV - List of substances subject to authorisation**
**Substances of very high concern**

None of the components are listed. Not applicable.

**Other EU regulations**
**Seveso Directive - Reporting thresholds (in tonnes)**
**Danger criteria**

Category	Notification and MAPP threshold	Safety report threshold
E2: Hazardous to the aquatic environment - Chronic 2	200	500
9ii: Toxic for the environment	200	500

**Black List Chemicals:** Not listed.

**Priority List Chemicals:** Not determined.

**Industrial emissions (integrated pollution prevention and control) - Air:** Not listed.

**Industrial emissions (integrated pollution prevention and control) - Water:** Not listed.

Product/Ingredient	Carcinogenic Effects	Mutagenic Effects	Developmental Effects	Fertility Effects
naphthalene	Carc. 2, H351	-	-	-

**Chemical Weapons Convention List Schedule I Chemicals:** Not listed.

**Chemical Weapons Convention List Schedule II Chemicals:** Not listed.

**Chemical Weapons Convention List Schedule III Chemicals:** Not listed.

**International Lists**

**Australia inventory (AICS):** All components are listed or exempted.

**Canada inventory:** All components are listed or exempted.

**China inventory (IECSC):** All components are listed or exempted.

**EU inventory (EINECS/ELINCS/NLP):** All components are listed or exempted.

**Japan inventory (ENCS):** All components are listed or exempted.

**Japan inventory (ISHL):** Not determined.

**Korea inventory (KECI):** All components are listed or exempted.

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**New Zealand inventory of Chemicals (NZIoC):** All components are listed or exempted.

**Philippines inventory (PICCS):** All components are listed or exempted.

**Taiwan inventory (TCSI):** All components are listed or exempted.

**United States inventory (TSCA 8b):** All components are listed or exempted.

## 15.2 Chemical safety assessment

This product contains substances for which Chemical Safety Assessments are still required.

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## SECTION 16: OTHER INFORMATION

### Abbreviations and acronyms

ATE = Acute Toxicity Estimate

CLP = Classification, Labelling and Packaging Regulation [Regulation (EC) No. 1272/2008]

DNEL = Derived No Effect Level

EUH statement = CLP-specific Hazard statement

PNEC = Predicted No Effect Concentration

RRN = REACH Registration Number

### Procedure used to derive the classification according to Regulation (EC) No. 1272/2008 [CLP/GHS]

Classification	Justification
Eye Irrit. 2, H319	Calculation method
Carc. 2, H351	Calculation method
STOT SE 3, H336	Calculation method
Aquatic Chronic 2, H411	Calculation method

### Full text of abbreviated H statements

H226 Flammable liquid and vapour.

H302 Harmful if swallowed.

H304 May be fatal if swallowed and enters airways. H312 Harmful in contact with skin.

H314 Causes severe skin burns and eye damage. H315 Causes skin irritation.

H317 May cause an allergic skin reaction.

H318 Causes serious eye damage.

H319 Causes serious eye irritation.

H332 Harmful if inhaled.

H335 May cause respiratory irritation.

H336 May cause drowsiness or dizziness.

H351 Suspected of causing cancer.

H400 Very toxic to aquatic life.

H410 Very toxic to aquatic life with long lasting effects. H411 Toxic to aquatic life with long lasting effects.

### Full text of classifications [CLP/GHS]

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Acute Tox. 4, H302	ACUTE TOXICITY (oral) - Category 4
Acute Tox. 4, H312	ACUTE TOXICITY (dermal) - Category 4
Acute Tox. 4, H332	ACUTE TOXICITY (inhalation) - Category 4
Aquatic Acute 1, H400	ACUTE AQUATIC HAZARD - Category 1
Aquatic Chronic 1, H410	LONG-TERM AQUATIC HAZARD - Category 1
Aquatic Chronic 2, H411	LONG-TERM AQUATIC HAZARD - Category 2
Asp. Tox. 1, H304	ASPIRATION HAZARD - Category 1
Carc. 2, H351 EUH066	CARCINOGENICITY - Category 2
Eye Dam. 1, H318	Repeated exposure may cause skin dryness or cracking.
Eye Irrit. 2, H319	SERIOUS EYE DAMAGE/EYE IRRITATION - Category 1
Flam. Liq. 3, H226	SERIOUS EYE DAMAGE/EYE IRRITATION - Category 2
Skin Corr. 1B, H314	FLAMMABLE LIQUIDS - Category 3
Skin Irrit. 2, H315	SKIN CORROSION/IRRITATION - Category 1B
Skin Sens. 1, H317	SKIN CORROSION/IRRITATION - Category 2
STOT SE 3, H335	SKIN SENSITISATION - Category 1
STOT SE 3, H336	SPECIFIC TARGET ORGAN TOXICITY - SINGLE EXPOSURE (Respiratory tract irritation) - Category 3
	SPECIFIC TARGET ORGAN TOXICITY - SINGLE EXPOSURE (Narcotic effects) - Category 3

### Information Source and References

This MSDS is prepared by Product Regulatory Services and Hazard Communications Groups from information supplied by internal references within our company. Fuelcare Limited urges each customer or recipient of this MSDS to study it carefully and consult appropriate expertise, as necessary or appropriate, to become aware of and understand the data contained in this MSDS and any hazards associated with the product. The information herein is provided in good faith and believed to be accurate as of the effective date shown above. However, no warranty, express or implied, is given. Regulatory requirements are subject to change and may differ between various locations. It is the buyer's/user's responsibility to ensure that his activities comply with all federal, state, provincial or local laws. The information presented here pertains only to the product as shipped. Since conditions for use of the product are not under the control of the manufacturer, it is the buyer's/user's duty to determine the conditions necessary for the safe use of this product. Due to the proliferation of sources for information such as manufacturer-specific MSDS's, we are not and cannot be responsible for MSDS's obtained from any source other than ourselves. If you have obtained an MSDS from another source or if you are not sure that the MSDS you have is current, please contact us for the most current version.