1.1. Product identifier
354 Electric 073540250AB

1.2. Relevant identified uses of the substance or mixture and uses advised against

1.3. Details of the supplier of the safety data sheet
- Company name: TUNAP GmbH & Co. KG
- Street: Bürgermeister-Seidl-Str. 2
- Place: D-82515 Wolfratshausen
- Telephone: +49 (0) 8171/1600 - 0
- Telefax: +49 (0) 8171/1600 - 40
- e-mail: sdb@tunap.com
- Internet: www.tunap.com

1.4. Emergency telephone number
+49 (0) 30 30 686 790 (Giftnotruf Berlin)

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture
- Regulation (EC) No. 1272/2008
  - Hazard categories:
    - Aerosol: Aerosol 1
    - Aspiration hazard: Asp. Tox. 1
    - Respiratory or skin sensitisation: Skin Sens. 1A
    - Specific target organ toxicity - repeated exposure: STOT RE 1
    - Hazardous to the aquatic environment: Aquatic Chronic 3
  - Hazard Statements:
    - Extremely flammable aerosol.
    - May burst if heated.
    - May be fatal if swallowed and enters airways.
    - May cause an allergic skin reaction.
    - Causes damage to organs through prolonged or repeated exposure.
    - Harmful to aquatic life with long lasting effects.

2.2. Label elements
- Regulation (EC) No. 1272/2008
  - Hazard components for labelling
    - Hydrocarbons, C10-C13, n-alkanes, iso-alkanes, cyclics, aromates (2-25 %)
    - Dihydro-3-(tetrapropenyl)furan-2,5-dione
  - Signal word: Danger
  - Pictograms:
    - Flammable:
    - Warning:
    - Acreage:

Hazard statements
- H222: Extremely flammable aerosol.
- H229: Pressurised container: May burst if heated.
- H317: May cause an allergic skin reaction.
- H372: Causes damage to organs through prolonged or repeated exposure.
- H412: Harmful to aquatic life with long lasting effects.

Precautionary statements
- P210: Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No
smoking.
P211 Do not spray on an open flame or other ignition source.
P260 Do not breathe Aerosol.
P280 Wear protective gloves.
P302+P352 IF ON SKIN: Wash with plenty of soap and water.
P251 Do not pierce or burn, even after use.
P410+P412 Protect from sunlight. Do not expose to temperatures exceeding 50 °C/122 °F.

Special labelling of certain mixtures
EUH066 Repeated exposure may cause skin dryness or cracking.

2.3. Other hazards
In case of insufficient ventilation and/or through use, explosive/highly flammable mixtures may develop.
The substances in the mixture do not meet the PBT/vPvB criteria according to REACH, annex XIII.

SECTION 3: Composition/information on ingredients

3.2. Mixtures

Hazardous components

<table>
<thead>
<tr>
<th>CAS No</th>
<th>Chemical name</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>64742-82-1</td>
<td>Hydrocarbons, C10-C13, n-alkanes, iso-alkanes, cyclics, aromates (2-25 %)</td>
<td>25 - &lt; 50 %</td>
</tr>
<tr>
<td>64742-53-6</td>
<td>Baseoil - unspecified, Distillates (petroleum), hydrotreated light naphthenic</td>
<td>25 - &lt; 50 %</td>
</tr>
<tr>
<td>75-28-5</td>
<td>Isobutane</td>
<td>25 - &lt; 50 %</td>
</tr>
<tr>
<td>74-98-6</td>
<td>Propane</td>
<td>3 - &lt; 5 %</td>
</tr>
<tr>
<td>106-97-8</td>
<td>Butane</td>
<td>1 - &lt; 3 %</td>
</tr>
<tr>
<td>26544-38-7</td>
<td>Dihydro-3-(tetrapropenyl)furan-2,5-dione</td>
<td>0.1 - &lt; 1 %</td>
</tr>
</tbody>
</table>

Full text of H and EUH statements: see section 16.

SECTION 4: First aid measures

4.1. Description of first aid measures

General information
First aider: Pay attention to self-protection! Remove persons to safety. Never give anything by mouth to an unconscious person or a person with cramps.

After inhalation
Remove person to fresh air and keep comfortable for breathing. In all cases of doubt, or when symptoms
After contact with skin
Wash with plenty of water and soap. Take off immediately all contaminated clothing and wash it before reuse. In all cases of doubt, or when symptoms persist, seek medical advice.

After contact with eyes
Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. In case of troubles or persistent symptoms, consult an ophthalmologist.

After ingestion
Do NOT induce vomiting. Observe risk of aspiration if vomiting occurs. Call a physician in any case!

4.2. Most important symptoms and effects, both acute and delayed
Headache, nausea, dizziness, fatigue, skin irritation

4.3. Indication of any immediate medical attention and special treatment needed
Treat symptomatically. Call a POISON CENTER. Symptoms can occur only after several hours.

SECTION 5: Firefighting measures

5.1. Extinguishing media

Suitable extinguishing media

Unsuitable extinguishing media
Full water jet

5.2. Special hazards arising from the substance or mixture
Incomplete combustion and thermolysis gases of different toxicity can occur. In the case of hydrocarbonaceous products such as CO, CO2, aldehydes and soot. These can be very dangerous if they are inhaled in high concentrations or in enclosed spaces.

5.3. Advice for firefighters
In case of fire and/or explosion do not breathe fumes. Move undamaged containers from immediate hazard area if it can be done safely. In case of fire: Wear self-contained breathing apparatus.

Additional information
Danger of bursting container.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures
Wear breathing apparatus if exposed to vapours/dusts/aerosols. Remove all sources of ignition. Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. Wear personal protection equipment.

6.2. Environmental precautions
Do not allow to enter into surface water or drains. Prevent spread over a wide area (e.g. by containment or oil barriers). Ensure all waste water is collected and treated via a waste water treatment plant.

6.3. Methods and material for containment and cleaning up
Absorb with liquid-binding material (e.g. sand, diatomaceous earth, acid- or universal binding agents). Clean contaminated articles and floor according to the environmental legislation.

6.4. Reference to other sections
Safe handling: see section 7
Personal protection equipment: see section 8
Disposal: see section 13

SECTION 7: Handling and storage

7.1. Precautions for safe handling
Advice on safe handling
Observe instructions for use.
Dust must be exhausted directly at the point of origin. Vapours/aerosols must be exhausted directly at the point of origin. If local exhaust ventilation is not possible or not sufficient, the entire working area should be ventilated by technical means.
When using do not eat, drink, smoke, sniff.
Wear personal protection equipment (refer to section 8).
In case of insufficient ventilation and/or through use, explosive/highly flammable mixtures may develop.

Advice on protection against fire and explosion
Keep away from sources of ignition - No smoking. Heating causes rise in pressure with risk of bursting.

Further information on handling
Avoid contact with skin and eyes.

7.2. Conditions for safe storage, including any incompatibilities

Requirements for storage rooms and vessels
Keep container tightly closed. Observe legal regulations and provisions.

Hints on joint storage
Do not store together with: Oxidizing agents. Pyrophoric or self-heating substances. Food and feedingstuffs.

Further information on storage conditions
Protect from frost. Protect against direct sunlight. Store in a cool dry place. Observe legal regulations and provisions.

7.3. Specific end use(s)
No information available.

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

Exposure limits (EH40)

<table>
<thead>
<tr>
<th>CAS No</th>
<th>Substance</th>
<th>ppm</th>
<th>mg/m³</th>
<th>fibres/ml</th>
<th>Category</th>
<th>Origin</th>
</tr>
</thead>
<tbody>
<tr>
<td>106-97-8</td>
<td>Butane</td>
<td>600</td>
<td>1450</td>
<td></td>
<td>TWA (8 h)</td>
<td>WEL</td>
</tr>
<tr>
<td></td>
<td></td>
<td>750</td>
<td>1810</td>
<td></td>
<td>STEL (15 min)</td>
<td>WEL</td>
</tr>
</tbody>
</table>

Additional advice on limit values
a no restriction
b End of exposure or end of shift
c at long term exposure: after several previous shifts
d before next shift

blood (B)
Urine (U)

8.2. Exposure controls

Appropriate engineering controls
If handled uncovered, arrangements with local exhaust ventilation have to be used.

Protective and hygiene measures
Avoid exposure. Wear suitable protective clothing. Draw up and observe skin protection programme.

Eye/face protection
Suitable eye protection: Tightly sealed safety glasses.
DIN EN 166
Hand protection
Protect skin by using skin protective cream. When handling with chemical substances, protective gloves must be worn with the CE-label including the four control digits. The quality of the protective gloves resistant to chemicals must be chosen as a function of the specific working place concentration and quantity of hazardous substances.
Suitable material: NBR (Nitrile rubber) Breakthrough time (maximum wearing time) 480min
Thickness of the glove material 0,45 mm
DIN EN 374

Skin protection
Wear suitable protective clothing. Take off immediately all contaminated clothing and wash it before reuse.

Respiratory protection
In case of inadequate ventilation wear respiratory protection.

Environmental exposure controls
Observe legal regulations and provisions.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

<table>
<thead>
<tr>
<th>Physical state:</th>
<th>Aerosol</th>
</tr>
</thead>
<tbody>
<tr>
<td>Colour:</td>
<td>light yellow</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Test method</th>
</tr>
</thead>
<tbody>
<tr>
<td>pH-Value (at 20 °C): not determined</td>
</tr>
<tr>
<td>Changes in the physical state</td>
</tr>
<tr>
<td>Melting point: not determined</td>
</tr>
<tr>
<td>Initial boiling point and boiling range: -40 °C</td>
</tr>
<tr>
<td>Sublimation point: not applicable</td>
</tr>
<tr>
<td>Softening point: not applicable</td>
</tr>
<tr>
<td>Pour point: not applicable</td>
</tr>
<tr>
<td>Flash point: -80 °C</td>
</tr>
</tbody>
</table>

Flammability
Solid: not applicable
Gas: not applicable

Lower explosion limits: 0,6
Upper explosion limits: 15
Ignition temperature: >200 °C

Auto-ignition temperature
Solid: not applicable
Gas: not applicable

Decomposition temperature: not determined

Oxidizing properties
Not oxidising.

Vapour pressure: not determined
Density (at 20 °C): 0,855 g/cm³  
Water solubility: The study does not need to be conducted because the substance is known to be insoluble in water.
Solubility in other solvents
not determined

Partition coefficient: not determined
Vapour density: not determined
Evaporation rate: not determined

9.2. Other information
Solid content: not determined

Data apply to technical substance: Relative density, Colour, Odour, Viscosity, pH.

SECTION 10: Stability and reactivity

10.1. Reactivity
Extremely flammable aerosol.

10.2. Chemical stability
The product is stable under storage at normal ambient temperatures.

10.3. Possibility of hazardous reactions
Do not expose to temperatures above 50 °C. Heating causes rise in pressure with risk of bursting.

10.4. Conditions to avoid
Keep away from sources of heat (e.g. hot surfaces), sparks and open flames. Vapours can form explosive mixtures with air. Take precautionary measures against static discharges.

10.5. Incompatible materials
Oxidizing agents. Pyrophoric or self-heating substances.

10.6. Hazardous decomposition products
Incomplete combustion and thermolysis gases of different toxicity can occur. In the case of hydrocarbonaceous products such as CO, CO2, aldehydes and soot. These can be very dangerous if they are inhaled in high concentrations or in enclosed spaces.

Further information
Do not mix with other chemicals.

SECTION 11: Toxicological information

11.1. Information on toxicological effects

Toxicokinetics, metabolism and distribution
There are no data available on the mixture itself.

Acute toxicity
Based on available data, the classification criteria are not met.
Irritation and corrosivity
Based on available data, the classification criteria are not met.

Sensitising effects
May cause an allergic skin reaction. (Dihydro-3-(tetrapropenyl)furan-2,5-dione)

Carcinogenic/mutagenic/toxic effects for reproduction
Based on available data, the classification criteria are not met.
No indication of human carcinogenicity.
No indications of human germ cell mutagenicity exist.
No indications of human reproductive toxicity exist.

STOT-single exposure
Based on available data, the classification criteria are not met.

STOT-repeated exposure
Repeated exposure may cause skin dryness or cracking. Causes damage to organs through prolonged or repeated exposure. (Hydrocarbons, C10-C13, n-alkanes, iso-alkanes, cyclics, aromates (2-25 %))

Aspiration hazard
Based on available data, the classification criteria are not met.

Specific effects in experiment on an animal
No information available.

Additional information on tests
The mixture is classified as hazardous according to regulation (EC) No 1272/2008 [CLP].

SECTION 12: Ecological information

12.1. Toxicity
Harmful to aquatic organisms, may cause long-term adverse effects in the aquatic environment.
### Aquatic toxicity

<table>
<thead>
<tr>
<th>CAS No</th>
<th>Chemical name</th>
<th>Dose</th>
<th>[h]</th>
<th>[d]</th>
<th>Species</th>
<th>Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>64742-82-1</td>
<td>Hydrocarbons, C10-C13, n-alkanes, iso-alkanes, cyclics, aromates (2-25 %)</td>
<td>ErC50</td>
<td>4,1 mg/l</td>
<td>72 h</td>
<td>Pseudokirchneriella subcapitata</td>
<td>REACh Registration Dossier</td>
</tr>
<tr>
<td></td>
<td></td>
<td>EC50</td>
<td>10 - 22 mg/l</td>
<td>48 h</td>
<td>Daphnia magna</td>
<td>REACh Registration Dossier</td>
</tr>
<tr>
<td></td>
<td></td>
<td>NOEC</td>
<td>0,13 mg/l</td>
<td>28 d</td>
<td>Oncorhynchus mykiss</td>
<td>REACh Registration Dossier</td>
</tr>
<tr>
<td></td>
<td></td>
<td>NOEC</td>
<td>0,28 mg/l</td>
<td>21 d</td>
<td>Daphnia magna</td>
<td>REACh Registration Dossier</td>
</tr>
</tbody>
</table>

#### 75-28-5 isobutane

<table>
<thead>
<tr>
<th>Acute fish toxicity</th>
<th>LC50</th>
<th>91,42 mg/l</th>
<th>96 h</th>
<th>Fish, no other information</th>
<th>United States Environmental Protection A</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acute algae toxicity</td>
<td>ErC50</td>
<td>19,37 mg/l</td>
<td>96 h</td>
<td>Algae</td>
<td>USEPA OPPT Risk Assessment Division 200</td>
</tr>
<tr>
<td>Acute crustacea toxicity</td>
<td>EC50</td>
<td>69,43 mg/l</td>
<td>48 h</td>
<td>Daphnia sp.</td>
<td>USEPA OPPT Risk Assessment Division 200</td>
</tr>
</tbody>
</table>

#### 74-98-6 propane

<table>
<thead>
<tr>
<th>Acute fish toxicity</th>
<th>LC50</th>
<th>49,9 mg/l</th>
<th>96 h</th>
<th>Fish, no other information</th>
<th>United States Environmental Protection A</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acute algae toxicity</td>
<td>ErC50</td>
<td>19,37 mg/l</td>
<td>96 h</td>
<td>Algae</td>
<td>USEPA OPPT Risk Assessment Division 200</td>
</tr>
<tr>
<td>Acute crustacea toxicity</td>
<td>EC50</td>
<td>69,43 mg/l</td>
<td>48 h</td>
<td>Daphnia sp.</td>
<td>USEPA OPPT Risk Assessment Division 200</td>
</tr>
</tbody>
</table>

#### 106-97-8 butane

<table>
<thead>
<tr>
<th>Acute fish toxicity</th>
<th>LC50</th>
<th>49,9 mg/l</th>
<th>96 h</th>
<th>Fish, no other information</th>
<th>United States Environmental Protection A</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acute algae toxicity</td>
<td>ErC50</td>
<td>19,37 mg/l</td>
<td>96 h</td>
<td>Algae</td>
<td>USEPA OPPT Risk Assessment Division 200</td>
</tr>
<tr>
<td>Acute crustacea toxicity</td>
<td>EC50</td>
<td>69,43 mg/l</td>
<td>48 h</td>
<td>Daphnia sp.</td>
<td>USEPA OPPT Risk Assessment Division 200</td>
</tr>
</tbody>
</table>

#### 26544-38-7 Dihydro-3-(tetrapropenyl)furan-2,5-dione

<table>
<thead>
<tr>
<th>Acute fish toxicity</th>
<th>LC50</th>
<th>&gt; 100 mg/l</th>
<th>96 h</th>
<th>Oncorhynchus mykiss (Rainbow trout)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acute algae toxicity</td>
<td>ErC50</td>
<td>110 mg/l</td>
<td>96 h</td>
<td>Selenastrum capricornutum</td>
</tr>
</tbody>
</table>

### 12.2. Persistence and degradability

The product has not been tested.
12.3. Bioaccumulative potential

The product has not been tested.

Partition coefficient n-octanol/water

<table>
<thead>
<tr>
<th>CAS No</th>
<th>Chemical name</th>
<th>Log Pow</th>
</tr>
</thead>
<tbody>
<tr>
<td>64742-82-1</td>
<td>Hydrocarbons, C10-C13, n-alkanes, iso-alkanes, cyclics, aromates (2-25 %)</td>
<td>4,2</td>
</tr>
<tr>
<td>75-28-5</td>
<td>isobutane</td>
<td>1,09</td>
</tr>
<tr>
<td>74-98-6</td>
<td>propane</td>
<td>1,09</td>
</tr>
<tr>
<td>106-97-8</td>
<td>butane</td>
<td>1,09</td>
</tr>
<tr>
<td>26544-38-7</td>
<td>Dihydro-3-(tetrapropenyl)furan-2,5-dione</td>
<td>&gt;=4,39</td>
</tr>
</tbody>
</table>

12.4. Mobility in soil

The product has not been tested.

12.5. Results of PBT and vPvB assessment

The product has not been tested.

12.6. Other adverse effects

No information available.

Further information

Do not allow to enter into surface water or drains. Do not allow to enter into soil/subsoil.

SECTION 13: Disposal considerations

13.1. Waste treatment methods

Advice on disposal

Do not allow to enter into surface water or drains. Do not allow to enter into soil/subsoil. Dispose of waste according to applicable legislation.

Waste disposal number of waste from residues/unused products

| 160504 | WASTES NOT OTHERWISE SPECIFIED IN THE LIST; gases in pressure containers and discarded chemicals; gases in pressure containers (including halons) containing hazardous substances; hazardous waste |

Waste disposal number of used product

| 160504 | WASTES NOT OTHERWISE SPECIFIED IN THE LIST; gases in pressure containers and discarded chemicals; gases in pressure containers (including halons) containing hazardous substances; hazardous waste |

Waste disposal number of contaminated packaging

| 150104 | WASTE PACKAGING; ABSORBENTS, WIPE CLOTHS, FILTER MATERIALS AND PROTECTIVE CLOTHING NOT OTHERWISE SPECIFIED; packaging (including separately collected municipal packaging waste); metallic packaging |

Contaminated packaging

This material and its container must be disposed of as hazardous waste. Handle contaminated packages in the same way as the substance itself.

SECTION 14: Transport information

Land transport (ADR/RID)
14.1. UN number: UN 1950
14.2. UN proper shipping name: AEROSOLS
14.3. Transport hazard class(es): 2
14.4. Packing group: -
   Hazard label: 2.1
   Classification code: 5F
   Special Provisions: 190 327 344 625
   Limited quantity: 1 L
   Excepted quantity: E0
   Transport category: 2
   Tunnel restriction code: D

Inland waterways transport (ADN)
14.1. UN number: UN 1950
14.2. UN proper shipping name: AEROSOLS
14.3. Transport hazard class(es): 2
14.4. Packing group: -
   Hazard label: 2.1
   Classification code: 5F
   Special Provisions: 190 327 344 625
   Limited quantity: 1 L
   Excepted quantity: E0

Marine transport (IMDG)
14.1. UN number: UN 1950
14.2. UN proper shipping name: AEROSOLS
14.3. Transport hazard class(es): 2.1
14.4. Packing group: -
   Hazard label: 2.1
   Marine pollutant: no
   Special Provisions: 63, 190, 277, 327, 344, 381,959
   Limited quantity: 1000 mL
   Excepted quantity: E0
   EmS: F-D, S-U

Air transport (ICAO-TI/IATA-DGR)
14.1. UN number: UN 1950
14.2. UN proper shipping name: AEROSOLS, flammable
14.3. Transport hazard class(es): 2.1
14.4. Packing group: -
   Hazard label: 2.1
   Special Provisions: A145 A167 A802
   Limited quantity Passenger: 30 kg G
   Passenger LQ: Y203
   Excepted quantity: E0
   IATA-packing instructions - Passenger: 203
   IATA-max. quantity - Passenger: 75 kg
   IATA-packing instructions - Cargo: 203
   IATA-max. quantity - Cargo: 150 kg

14.5. Environmental hazards
ENVIRONMENTALLY HAZARDOUS: no
14.6. Special precautions for user

Warning: Flammable gases.

14.7. Transport in bulk according to Annex II of Marpol and the IBC Code

not applicable

SECTION 15: Regulatory information

15.1. Safety, health and environmental regulations/legislation specific for the substance or mixture

EU regulatory information

Restrictions on use (REACH, annex XVII):

Entry 28: Hydrocarbons, C10-C13, n-alkanes, iso-alkanes, cyclics, aromates (2-25 %); Baseoil - unspecified, Distillates (petroleum), hydrotreated light naphthenic; isobutane; butane

2010/75/EU (VOC): No information available.

2004/42/EC (VOC): No information available.

Information according to 2012/18/EU (SEVESO III): P3a FLAMMABLE AEROSOLS

Additional information

Safety Data Sheet according to Regulation (EC) No. 1907/2006 (REACH)

Aerosol directive (75/324/EEC)

National regulatory information

Employment restrictions: Observe restrictions to employment for juvenils according to the 'juvenile work protection guideline' (94/33/EC).

Water contaminating class (D): 2 - clearly water contaminating

Skin resorption/Sensitization: Causes allergic hypersensitivity reactions.

SECTION 16: Other information

Abbreviations and acronyms

ADR: Accord européen sur le transport des marchandises dangereuses par Route

(IMDG: International Maritime Code for Dangerous Goods

IATA: International Air Transport Association

GHS: Globally Harmonized System of Classification and Labelling of Chemicals

EINECS: European Inventory of Existing Commercial Chemical Substances

ELINCS: European List of Notified Chemical Substances

CAS: Chemical Abstracts Service

LC50: Lethal concentration, 50%

LD50: Lethal dose, 50%

Relevant H and EUH statements (number and full text)

H220 Extremely flammable gas.

H222 Extremely flammable aerosol.

H229 Pressurised container: May burst if heated.

H280 Contains gas under pressure; may explode if heated.

H304 May be fatal if swallowed and enters airways.

H317 May cause an allergic skin reaction.

H319 Causes serious eye irritation.

H372 Causes damage to organs (Central nervous system) through prolonged or repeated exposure if inhaled.

H372 Causes damage to organs through prolonged or repeated exposure.

H412 Harmful to aquatic life with long lasting effects.

H413 May cause long lasting harmful effects to aquatic life.

EUH066 Repeated exposure may cause skin dryness or cracking.
Further Information

The information is based on present level of our knowledge. It does not, however, give assurances of product properties and establishes no contract legal rights. The receiver of our product is singulary responsible for adhering to existing laws and regulations.

(The data for the hazardous ingredients were taken respectively from the last version of the sub-contractor’s safety data sheet.)