SECTION 1: Identification of the hazardous chemical and of the supplier

Product identifier
Product name : BENOX®L-40LV

Recommended use of the chemical and restrictions on use
Recommended use : Curing chemical

Manufacturer or supplier’s details
Company : United Initiators GmbH
Address : Dr.-Gustav-Adolph-Str. 3
          82049 Pullach 09
Telephone :
Emergency telephone number : +49 / 89 / 74422 – 0 (24 h)
E-mail address : contact@united-in.com

SECTION 2: Hazards identification

Classification of the hazardous chemical
Organic peroxides : Type E
Serious eye damage/eye irritation : Category 2
Skin sensitisation : Category 1
Hazardous to the aquatic environment - acute hazard : Category 1
Hazardous to the aquatic environment - chronic hazard : Category 1

Label elements
Hazard pictograms :

Signal word : Warning
Hazard statements :
H242 Heating may cause a fire.
H317 May cause an allergic skin reaction.
H319 Causes serious eye irritation.
H410 Very toxic to aquatic life with long lasting effects.
Precautionary statements:

**Prevention:**
- P210 Keep away from heat/sparks/open flames/hot surfaces. No smoking.
- P220 Keep/Store away from clothing/strong acids, bases, heavy metal salts and other reducing substances/combustible materials.
- P234 Keep only in original container.
- P273 Avoid release to the environment.
- P280 Wear protective gloves/eye protection/face protection.

**Response:**
- P391 Collect spillage.

**Storage:**
- P411 + P235 Store at temperatures not exceeding 30 °C/86 °F. Keep cool.

Other hazards which do not result in classification
None known.

**SECTION 3: Composition and information of the ingredients of the hazardous chemical**

<table>
<thead>
<tr>
<th>Substance / Mixture</th>
<th>:</th>
<th>Mixture</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chemical nature</td>
<td>:</td>
<td>Organic Peroxide Liquid mixture</td>
</tr>
</tbody>
</table>

**Components**

<table>
<thead>
<tr>
<th>Chemical name</th>
<th>CAS-No.</th>
<th>Concentration (% w/w)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dibenzoyl peroxide</td>
<td>94-36-0</td>
<td>&gt;= 35 - &lt; 40</td>
</tr>
</tbody>
</table>

**SECTION 4: First aid measures**

**General advice**
- Move out of dangerous area.
- Show this safety data sheet to the doctor in attendance.
- Do not leave the victim unattended.
- Call a physician immediately.

**If inhaled**
- If unconscious, place in recovery position and seek medical advice.
- If symptoms persist, call a physician.
- If breathed in, move person into fresh air.

**In case of skin contact**
- In case of contact, immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes.
- Wash contaminated clothing before re-use.
- If on skin, rinse well with water.
- If on clothes, remove clothes.
- If symptoms persist, call a physician.
SECTION 5: Firefighting measures

Extinguishing media

Suitable extinguishing media:
- Water spray jet
- Alcohol-resistant foam
- Carbon dioxide (CO2)
- Dry chemical

Unsuitable extinguishing media:
- High volume water jet

Physicochemical hazards arising from the chemical

Specific hazards during firefighting:
- Contact with incompatible materials or exposure to temperatures exceeding SADT may result in a self-accelerating decomposition reaction with release of flammable vapors which may auto-ignite.
- The product burns violently.
- Flash back possible over considerable distance.
- Vapours may form explosive mixtures with air.
- The product will float on water and can be re-ignited on surface water.
- Cool closed containers exposed to fire with water spray.

Special protective equipment and precautions for fire-fighters

Special protective equipment for firefighters:
- Wear self-contained breathing apparatus for firefighting if necessary.
- Use personal protective equipment.

Specific extinguishing methods:
- Collect contaminated fire extinguishing water separately. This must not be discharged into drains.
- Fire residues and contaminated fire extinguishing water must be disposed of in accordance with local regulations.
- Use extinguishing measures that are appropriate to local cir-
SECTION 6: Accidental release measures

Personal precautions, protective equipment and emergency procedures
- Use personal protective equipment.
- Remove all sources of ignition.
- Follow safe handling advice and personal protective equipment recommendations.
- Beware of vapours accumulating to form explosive concentrations. Vapours can accumulate in low areas.
- Never return spills in original containers for re-use.
- Treat recovered material as described in the section "Disposal considerations".

Environmental precautions
- Prevent product from entering drains.
- Prevent further leakage or spillage if safe to do so.
- If the product contaminates rivers and lakes or drains inform respective authorities.

Methods and materials for containment and cleaning up
- Contact with incompatible substances can cause decomposition at or below SADT.
- Clear spills immediately.
- Suppress (knock down) gases/vapours/mists with a water spray jet.
- To clean the floor and all objects contaminated by this material, use plenty of water.
- Soak up with inert absorbent material.
- Isolate waste and do not reuse.
- Non-sparking tools should be used.
- Local or national regulations may apply to releases and disposal of this material, as well as those materials and items employed in the cleanup of releases. You will need to determine which regulations are applicable.

SECTION 7: Handling and storage

Handling

Precautions for safe handling
- See Engineering measures under EXPOSURE CONTROLS/PERSONAL PROTECTION section.
- Keep away from heat and sources of ignition.
- Use only explosion-proof equipment.
- Keep away from combustible material.
Advice on safe handling: Do not breathe vapours/dust. Avoid exposure - obtain special instructions before use. Avoid contact with skin and eyes. Avoid formation of aerosol. Take precautionary measures against static discharges. Never return any product to the container from which it was originally removed. Provide sufficient air exchange and/or exhaust in work rooms. Avoid confinement. Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. Smoking, eating and drinking should be prohibited in the application area. Wash thoroughly after handling. For personal protection see section 8. Persons susceptible to skin sensitisation problems or asthma, allergies, chronic or recurrent respiratory disease should not be employed in any process in which this mixture is being used. Protect from contamination.

Storage

Conditions for safe storage, including any incompatibilities

Conditions for safe storage: Avoid impurities (e.g. rust, dust, ash), risk of decomposition. Electrical installations / working materials must comply with the technological safety standards. Containers which are opened must be carefully resealed and kept upright to prevent leakage. Store in original container. Keep containers tightly closed in a cool, well-ventilated place. Store in accordance with the particular national regulations.

Materials to avoid: Keep away from strong acids, bases, heavy metal salts and other reducing substances.

Recommended storage temperature: 0 - 30 °C

Further information on storage stability: No decomposition if stored normally.

SECTION 8: Exposure controls and personal protection

Control parameters

<table>
<thead>
<tr>
<th>Components</th>
<th>CAS-No.</th>
<th>Value type</th>
<th>Control parameters / Permissible concentration</th>
<th>Basis</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dibenzoyl peroxide</td>
<td>94-36-0</td>
<td>TWA</td>
<td>5 mg/m³</td>
<td>MY PEL</td>
</tr>
<tr>
<td></td>
<td></td>
<td>TWA</td>
<td>5 mg/m³</td>
<td>ACGIH</td>
</tr>
<tr>
<td>Zinc stearate</td>
<td>557-05-1</td>
<td>TWA</td>
<td>10 mg/m³</td>
<td>MY PEL</td>
</tr>
<tr>
<td></td>
<td></td>
<td>TWA (Inhal-</td>
<td>10 mg/m³</td>
<td>ACGIH</td>
</tr>
</tbody>
</table>
**SAFETY DATA SHEET**  
**BENOX® L-40LV**

<table>
<thead>
<tr>
<th>Version</th>
<th>Revision Date</th>
<th>SDS Number</th>
<th>Date of last issue</th>
<th>Date of first issue</th>
</tr>
</thead>
<tbody>
<tr>
<td>2.0</td>
<td>08.03.2019</td>
<td>600000000152</td>
<td>09.11.2018</td>
<td>09.11.2018</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Appropriate engineering controls</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Minimize workplace exposure concentrations.</strong></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Individual protection measures, such as personal protective equipment</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Eye/face protection</strong></td>
<td>Tightly fitting safety goggles</td>
</tr>
<tr>
<td></td>
<td>Please wear suitable protective goggles. Also wear face protection if there is a splash hazard.</td>
</tr>
<tr>
<td></td>
<td>Ensure that eyewash stations and safety showers are close to the workstation location.</td>
</tr>
<tr>
<td><strong>Skin protection</strong></td>
<td>Select appropriate protective clothing based on chemical resistance data and an assessment of the local exposure potential.</td>
</tr>
<tr>
<td><strong>Hand protection</strong></td>
<td>butyl-rubber</td>
</tr>
<tr>
<td><strong>Material</strong></td>
<td>&gt;= 480 min</td>
</tr>
<tr>
<td><strong>Break through time</strong></td>
<td>0.5 mm</td>
</tr>
<tr>
<td><strong>Glove thickness</strong></td>
<td></td>
</tr>
</tbody>
</table>

| Remarks | Choose gloves to protect hands against chemicals depending on the concentration and quantity of the hazardous substance and specific to place of work. For special applications, we recommend clarifying the resistance to chemicals of the aforementioned protective gloves with the glove manufacturer. Wash hands before breaks and at the end of workday. |

<table>
<thead>
<tr>
<th>Respiratory protection</th>
<th>In the case of dust or aerosol formation use respirator with an approved filter.</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Filter type</strong></td>
<td>ABEK-filter</td>
</tr>
</tbody>
</table>

| Hygiene measures | Keep away from food and drink. |
|-----------------| When using do not eat or drink. |
|                 | When using do not smoke. |
|                 | Wash hands before breaks and immediately after handling the product. |

<table>
<thead>
<tr>
<th><strong>SECTION 9: Physical and chemical properties</strong></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Appearance</strong></td>
<td>Emulsion</td>
</tr>
<tr>
<td><strong>Colour</strong></td>
<td>white</td>
</tr>
<tr>
<td><strong>Odour</strong></td>
<td>characteristic</td>
</tr>
<tr>
<td><strong>pH</strong></td>
<td>Not applicable</td>
</tr>
<tr>
<td><strong>Melting point/range</strong></td>
<td>No data available</td>
</tr>
</tbody>
</table>
## Boiling point/boiling range
- Decomposition: Decomposes below the boiling point.

## Flash point
- Not applicable

## Evaporation rate
- Not applicable

## Flammability (solid, gas)
- does not ignite

## Upper explosion limit / Upper flammability limit
- Not applicable

## Lower explosion limit / Lower flammability limit
- Not applicable

## Vapour pressure
- Not applicable

## Density
- 1.2 g/cm³ (25 °C)

## Solubility(ies)
- Water solubility: insoluble

## Partition coefficient: n-octanol/water
- Not applicable

## Self-Accelerating decomposition temperature (SADT)
- 50 °C
  - SADT-Self Accelerating Decomposition Temperature. Lowest temperature at which the tested package size will undergo a self-accelerating decomposition reaction.

## Viscosity
- Viscosity, dynamic: 1 mPa.s
- Viscosity, kinematic: Not applicable

## Explosive properties
- Not explosive

## Oxidizing properties
- The substance or mixture is not classified as oxidizing.
  - Organic peroxide

### SECTION 10: Stability and reactivity

**Reactivity**
- Stable under recommended storage conditions.

**Chemical stability**
- Stable under recommended storage conditions.

**Possibility of hazardous reactions**
- Vapours may form explosive mixture with air.

**Conditions to avoid**
- Protect from contamination.
  - Contact with incompatible substances can cause decomposition at or below SADT.
  - Heat, flames and sparks.
  - Avoid confinement.
Incompatible materials: Accelerators, strong acids and bases, heavy metals and heavy metal salts, reducing agents

Hazardous decomposition products: Irritant, caustic, flammable, noxious/toxic gases and vapours can develop in the case of fire and decomposition

SECTION 11: Toxicological information

Information on likely routes of exposure: None known.

Acute toxicity
Not classified based on available information.

Components:

Dibenzoyl peroxide:
Acute oral toxicity: LD50 (Rat): > 5,000 mg/kg
Method: OECD Test Guideline 401
Assessment: The substance or mixture has no acute oral toxicity

Acute inhalation toxicity: LC50 (Rat): > 24.3 mg/l
Exposure time: 4 h
Test atmosphere: vapour
Method: OECD Test Guideline 403
Assessment: The substance or mixture has no acute inhalation toxicity

Acute dermal toxicity: Remarks: No data available

Skin corrosion/irritation
Not classified based on available information.

Product:
Remarks: May cause skin irritation in susceptible persons.

Components:

Dibenzoyl peroxide:
Species: Rabbit
Result: No skin irritation

Serious eye damage/eye irritation
Causes serious eye irritation.

Product:
Remarks: Vapours may cause irritation to the eyes, respiratory system and the skin.
Components:

Dibenzoyl peroxide:
Species: Rabbit
Result: Irritation to eyes, reversing within 7 days

Respiratory or skin sensitisation

Skin sensitisation
May cause an allergic skin reaction.

Respiratory sensitisation
Not classified based on available information.

Product:
Remarks: Causes sensitisation.

Components:

Dibenzoyl peroxide:
Exposure routes: Skin contact
Species: Mouse
Method: Local lymph node assay (LLNA)
Result: May cause sensitisation by skin contact.

Germ cell mutagenicity
Not classified based on available information.

Components:

Dibenzoyl peroxide:
Genotoxicity in vitro: Result: negative
Remarks: In vitro tests did not show mutagenic effects

Genotoxicity in vivo: Result: negative
Remarks: In vivo tests did not show mutagenic effects

Carcinogenicity
Not classified based on available information.

Components:

Dibenzoyl peroxide:
Remarks: Not classified due to data which are conclusive although insufficient for classification.

Reproductive toxicity
Not classified based on available information.

Components:

Dibenzoyl peroxide:
Effects on fertility: Species: Rat, male
Application Route: Oral
General Toxicity - Parent: NOAEL: 1,000 mg/kg body weight
Method: OECD Test Guideline 422

Species: Rat, female
Application Route: Oral
General Toxicity - Parent: NOAEL: 500 mg/kg body weight
Method: OECD Test Guideline 422

Reproductive toxicity - Assessment: No evidence of adverse effects on sexual function and fertility, or on development, based on animal experiments.

STOT - single exposure
Not classified based on available information.

Components:

Dibenzoyl peroxide:
Exposure routes: Ingestion
Assessment: The substance or mixture is not classified as specific target organ toxicant, single exposure.

STOT - repeated exposure
Not classified based on available information.

Components:

Dibenzoyl peroxide:
Exposure routes: Ingestion
Assessment: The substance or mixture is not classified as specific target organ toxicant, repeated exposure.

Aspiration toxicity
Not classified based on available information.

Components:

Dibenzoyl peroxide:
No aspiration toxicity classification

Further information

Product:
Remarks: No data available
SECTION 12: Ecological information

Ecotoxicity

Product:

Ecotoxicology Assessment
Acute aquatic toxicity: Very toxic to aquatic life.
Chronic aquatic toxicity: Very toxic to aquatic life with long lasting effects.

Components:

Dibenzoyl peroxide:
Toxicity to fish: EC50 (Oncorhynchus mykiss (rainbow trout)): 0.06 mg/l
Exposure time: 96 h
Method: OECD Test Guideline 203

Toxicity to daphnia and other aquatic invertebrates: EC50 (Daphnia magna (Water flea)): 0.11 mg/l
Exposure time: 48 h
Method: OECD Test Guideline 202

Toxicity to algae: EC50 (Pseudokirchneriella subcapitata (green algae)): 0.06 mg/l
Exposure time: 72 h
Method: OECD Test Guideline 201

M-Factor (Acute aquatic toxicity): 10

Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity): EC10 (Daphnia magna (Water flea)): 0.001 mg/l
Exposure time: 21 d
Test Type: semi-static test
Method: OECD Test Guideline 211

M-Factor (Chronic aquatic toxicity): 10

Toxicity to microorganisms: EC50 (Bacteria): 35 mg/l

Ecotoxicology Assessment
Acute aquatic toxicity: Very toxic to aquatic life.
Chronic aquatic toxicity: Very toxic to aquatic life with long lasting effects.

Persistence and degradability

Components:

Dibenzoyl peroxide:
Biodegradability: Result: Inherently biodegradable.
Bioaccumulative potential

Components:

Dibenzoyl peroxide:
Partition coefficient: n-octanol/water: log Pow: 3.2 (20 °C)

Mobility in soil
No data available

Other adverse effects

Product:
Additional ecological information: An environmental hazard cannot be excluded in the event of unprofessional handling or disposal. Very toxic to aquatic life with long lasting effects.

SECTION 13: Disposal information

Disposal methods
Waste from residues: The product should not be allowed to enter drains, water courses or the soil. Do not contaminate ponds, waterways or ditches with chemical or used container. Dispose of wastes in an approved waste disposal facility.

Contaminated packaging: Empty remaining contents. Dispose of as unused product. Do not re-use empty containers. Do not burn, or use a cutting torch on, the empty drum. Dispose of in accordance with local regulations.

SECTION 14: Transport information

International Regulations

UNRTDG
UN number: UN 3107
Proper shipping name: ORGANIC PEROXIDE TYPE E, LIQUID (DIBENZOYL PEROXIDE)
Class: 5.2
Packing group: Not assigned by regulation
Labels: Organic Peroxides, Keep Away From Heat

IATA-DGR
UN/ID No.: UN 3107
Proper shipping name: Organic peroxide type E, liquid (Dibenzoyl peroxide)
Class: 5.2
Packing group: Not assigned by regulation
Labels: Organic Peroxides, Keep Away From Heat
Packing instruction (cargo): 570
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Date of first issue: 09.11.2018

aircraft)
Packing instruction (passen-
ger aircraft)  : 570

IMDG-Code
UN number  : UN 3107
Proper shipping name  : ORGANIC PEROXIDE TYPE E, LIQUID (DIBENZOYL PEROXIDE)
Class  : 5.2
Packing group  : Not assigned by regulation
Labels  : 5.2
EmS Code  : F-J, S-R
Marine pollutant  : yes

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code
Not applicable for product as supplied.

Hazchem Code  : 2W

SECTION 15: Regulatory information

Safety, health, and environmental regulations specific for the hazardous chemical
Gefahrgruppe nach § 3 BGV B4: II (German regulatory requirements)
Occupational Safety and Health (Classification, Labelling and Safety Data Sheet of Hazardous Chemicals) Regulations 2013.

The components of this product are reported in the following inventories:
DSL (CA)  : All components of this product are on the Canadian DSL
AICS (AU)  : On the inventory, or in compliance with the inventory
KECI (KR)  : On the inventory, or in compliance with the inventory
IECSC (CN)  : On the inventory, or in compliance with the inventory
TCSI (TW)  : On the inventory, or in compliance with the inventory
TSCA (US)  : On TSCA Inventory

SECTION 16: Other information

Further information

Further information
SAFETY DATA SHEET

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Other information: This safety datasheet only contains information relating to safety and does not replace any product information or product specification. These safety instructions also apply to empty packaging which may still contain product residues.


Date format: dd.mm.yyyy

Full text of other abbreviations:

ACGIH: USA. ACGIH Threshold Limit Values (TLV)

ACGIH / TWA: 8-hour, time-weighted average
MY PEL / TWA: Eight-hour time-weighted average airborne concentration

AICS - Australian Inventory of Chemical Substances; ANTT - National Agency for Transport by Land of Brazil; ASTM - American Society for the Testing of Materials; bw - Body weight; CMR - Carcinogen, Mutagen or Reproductive Toxicant; CPR - Controlled Products Regulations; DIN - Standard of the German Institute for Standardisation; DSL - Domestic Substances List (Canada); ECx - Concentration associated with x% response; ELx - Loading rate associated with x% response; EmS - Emergency Schedule; ENCS - Existing and New Chemical Substances (Japan); ErCx - Concentration associated with x% growth rate response; ERG - Emergency Response Guide; GHS - Globally Harmonized System; GLP - Good Laboratory Practice; IA RC - International Agency for Research on Cancer; IATA - International Air Transport Association; IBC - International Code for the Construction and Equipment of Ships carrying Dangerous Chemicals in Bulk; IC50 - Half maximal inhibitory concentration; ICAO - International Civil Aviation Organization; IECSC - Inventory of Existing Chemical Substances in China; IMDG - International Maritime Dangerous Goods; IMO - International Maritime Organization; ISHL - Industrial Safety and Health Law (Japan); ISO - International Organisation for Standardization; KECI - Korea Existing Chemicals Inventory; LC50 - Lethal Concentration to 50% of a test population; LD50 - Lethal Dose to 50% of a test population (Median Lethal Dose); MARPOL - International Convention for the Prevention of Pollution from Ships; n.o.s. - Not Otherwise Specified; Nch - Chilean Norm; NO(A)EC - No Observed (Adverse) Effect Concentration; NO(A)EL - No Observed (Adverse) Effect Level; NOELR - No Observable Adverse Effect Loading Rate; NOM - Official Mexican Norm; NTP - National Toxicology Program; NZIoC - New Zealand Inventory of Chemicals; OECD - Organization for Economic Co-operation and Development; OPPTS - Office of Chemical Safety and Pollution Prevention; PBT - Persistent, Bioaccumulative and Toxic substance; PICCS - Philippines Inventory of Chemicals and Chemical Substances; (Q)SAR - (Quantitative) Structure Activity Relationship; REACH - Regulation (EC) No 1907/2006 of the European Parliament and of the Council concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals; SADT - Self-Accelerating Decomposition Temperature; SDS - Safety Data Sheet; TCSI - Taiwan Chemical Substance Inventory; TDG - Transportation of Dangerous Goods; TSCA - Toxic Substances Control Act (United States); UN - United Nations; UNRTDG - United Nations Recommendations on the Transport of Dangerous Goods; vPvB - Very Persistent and Very Bioaccumulative; WHMIS - Workplace Hazardous Materials Information System
The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.

MY / EN