SAFETY DATA SHEET
according to GB/T 16483 and GB/T 17519

BENOX A-75

1. PRODUCT AND COMPANY IDENTIFICATION

Product name : BENOX A-75
Chemical nature : Organic Peroxide
Solid mixture

Manufacturer or supplier’s details
Company : Shanghai United Initiators Trading Co. Ltd.
1702, Asia Mansion
Address : 650 Han Kou Road
Shanghai, China OH 200001
Telephone : +86 21 34293909
Emergency telephone number : +86 21 34293909
E-mail address : cs-initiators.cn@united-in.com

Recommended use of the chemical and restrictions on use
Recommended use : Hardener
polymerisation initiators

2. HAZARDS IDENTIFICATION

Emergency Overview
Appearance : powder
Colour : white
Odour : aromatic

Heating may cause a fire. May cause an allergic skin reaction. Causes serious eye irritation. Very
toxic to aquatic life with long lasting effects.

GHS Classification
Organic peroxides : Type C
Serious eye damage/eye irri-
tation : Category 2A
Skin sensitisation : Category 1
Acute aquatic toxicity : Category 1
Chronic aquatic toxicity : Category 1

GHS label elements
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SDS Number: 600000000135    Print Date: 2018/05/04

Hazard pictograms:

Signal word: Danger

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.
P261 Avoid breathing dust/ fume/ gas/ mist/ vapours/ spray.
P264 Wash skin thoroughly after handling.
P272 Contaminated work clothing should not be allowed out of the workplace.
P273 Avoid release to the environment.
P280 Wear protective gloves/ eye protection/ face protection.

Response:
P302 + P352 IF ON SKIN: Wash with plenty of water.
P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P333 + P313 If skin irritation or rash occurs: Get medical advice/ attention.
P337 + P313 If eye irritation persists: Get medical advice/ attention.
P362 + P364 Take off contaminated clothing and wash it before reuse.
P391 Collect spillage.

Storage:
P410 Protect from sunlight.
P411 + P235 Store at temperatures not exceeding 30 °C/ 86 °F. Keep cool.
P420 Store away from other materials.

Disposal:
P501 Dispose of contents/ container to an approved waste disposal plant.

Physical and chemical hazards
Heating may cause a fire.
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Health hazards
Causes serious eye irritation. May cause an allergic skin reaction.

Environmental hazards
Very toxic to aquatic life. Very toxic to aquatic life with long lasting effects.

Other hazards which do not result in classification
None known.

3. COMPOSITION/INFORMATION ON INGREDIENTS

Substance / Mixture : Mixture

Hazardous 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;= 70 - &lt; 75</td>
</tr>
</tbody>
</table>

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.

In case of eye contact : In the case of contact with eyes, rinse immediately with plenty of water and seek medical advice.
Remove contact lenses.
Protect unharmed eye.
Keep eye wide open while rinsing.
If eye irritation persists, consult a specialist.

If swallowed : Keep respiratory tract clear.
Call a physician immediately.

Most important symptoms and effects, both acute and delayed : May cause an allergic skin reaction.
Causes serious eye irritation.

Protection of first-aiders : First Aid responders should pay attention to self-protection and use the recommended protective clothing.
## 5. FIREFIGHTING MEASURES

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

| Unsuitable extinguishing media | High volume water jet |

### 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 reignited on surface water.
- Cool closed containers exposed to fire with water spray.

| 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 circumstances and the surrounding environment.  
|                               | Do not use a solid water stream as it may scatter and spread fire.  
|                               | Remove undamaged containers from fire area if it is safe to do so.  
|                               | Use water spray to cool unopened containers.     |

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

## 6. ACCIDENTAL RELEASE MEASURES

### Personal precautions, protective equipment and emergency procedures:
- Use personal protective equipment.
- Avoid dust formation.
- Avoid breathing dust.
- Remove all sources of ignition.
- Follow safe handling advice and personal protective equipment recommendations.
- 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.

Prevention of secondary hazards: Never return spills in original containers for re-use. Treat recovered material as described in the section "Disposal considerations".

7. HANDLING AND STORAGE

Handling:
Technical measures: See Engineering measures under EXPOSURE CONTROLS/PERSONAL PROTECTION section.

Advice on protection against fire and explosion: Avoid dust formation. Provide appropriate exhaust ventilation at places where dust is formed. 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. 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.

Avoidance of contact: Accelerators, strong acids and bases, heavy metals and heavy metal salts, reducing agents

Storage
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: 5 - 30 °C

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Components with workplace control parameters

<table>
<thead>
<tr>
<th>Components</th>
<th>CAS-No.</th>
<th>Value type (Form of exposure)</th>
<th>Control parameters / Permissible concentration</th>
<th>Basis</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dibenzoyl peroxide</td>
<td>94-36-0</td>
<td>PC-TWA</td>
<td>5 mg/m3</td>
<td>GBZ 2.1-2007</td>
</tr>
<tr>
<td></td>
<td></td>
<td>TWA</td>
<td>5 mg/m3</td>
<td>ACGIH</td>
</tr>
</tbody>
</table>

Engineering measures: Minimize workplace exposure concentrations.

Personal protective equipment

Respiratory protection: In the case of dust or aerosol formation use respirator with an approved filter.

Filter type: Filter type P

Eye/face protection: Tightly fitting safety goggles
Please wear suitable protective goggles. Also wear face protection if there is a splash hazard.
Ensure that eyewash stations and safety showers are close to the workstation location.

Skin and body protection: Select appropriate protective clothing based on chemical resistance data and an assessment of the local exposure potential.

Hand protection Material: butyl-rubber
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Break through time : >= 480 min
Glove thickness : 0.5 mm

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.

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.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance : powder
Colour : white
Odour : aromatic
Odour Threshold : No data available
pH : No data available
Melting point/range : Decomposition: Decomposes below the melting point.
Boiling point/boiling range : Not applicable
Flash point : Not applicable
Evaporation rate : No data available
Flammability (solid, gas) : Not applicable
Upper explosion limit : No data available
Lower explosion limit : No data available
Vapour pressure : No data available
Relative vapour density : No data available
Bulk density : 590 kg/m3 (20 °C)
Solubility(ies) : Water solubility : 0.0004 g/l insoluble
Solubility in other solvents : soluble
Solvent: Phthalates

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

Self-Accelerating decomposition temperature (SADT) : 70 °C
SADT-Self Accelerating Decomposition Temperature. Lowest temperature at which the tested package size will undergo a self-accelerating decomposition reaction.

Viscosity
Viscosity, dynamic : Not applicable
Viscosity, kinematic : No data available

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

10. STABILITY AND REACTIVITY

Reactivity : Stable under recommended storage conditions.
Chemical stability : Stable under recommended storage conditions.
Possibility of hazardous reactions : Dust may form explosive mixture in 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

11. TOXICOLOGICAL INFORMATION

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 tox-
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 and/or dermatitis.

**Components:**

Dibenzoyl peroxide:
Species: Rabbit
Result: No skin irritation

Serious eye damage/eye irritation
Causes serious eye irritation.

**Product:**
Species: Rabbit
Result: Eye irritation
Method: OECD Test Guideline 405
Remarks: May cause irreversible eye damage.

**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:**
Species: Mouse
Method: OECD Test Guideline 429
Result: Causes sensitisation.
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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.

**Product:**
Remarks: negative

**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.
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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.

Repeated dose toxicity

Product:
Species: Rat
NOAEL: 1,000 mg/kg
Application Route: Oral
Exposure time: 28 d
Method: OECD Test Guideline 422

Aspiration toxicity
Not classified based on available information.

Components:
Dibenzoyl peroxide:
No aspiration toxicity classification

Further information

Product:
Remarks: No data available

12. ECOLOGICAL INFORMATION

Ecotoxicity

Components:
Dibenzoyl peroxide:
Toxicity to fish: EC50 (Oncorhynchus mykiss (rainbow trout)): 0.06 mg/l
Exposure time: 96 h
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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.

13. DISPOSAL CONSIDERATIONS

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.

14. TRANSPORT INFORMATION

International Regulations

UNRTDG
UN number: UN 3104
Proper shipping name: ORGANIC PEROXIDE TYPE C, SOLID (DIBENZOYL PEROXIDE)
Class: 5.2
Packing group: Not assigned by regulation
Labels: 5.2

IATA-DGR
UN/ID No.: UN 3104
Proper shipping name: Organic peroxide type C, solid (Dibenzoyl peroxide)
Class: 5.2
Packing group: Not assigned by regulation
Labels: Organic Peroxides, Keep Away From Heat
Packing instruction (cargo aircraft): 570
Packing instruction (passenger aircraft): 570

IMDG-Code
UN number: UN 3104
Proper shipping name: ORGANIC PEROXIDE TYPE C, SOLID (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.
National Regulations

GB 6944/12268
UN number : UN 3104
Proper shipping name : ORGANIC PEROXIDE TYPE C, SOLID (DIBENZOYL PEROXIDE)
Class : 5.2
Packing group : Not assigned by regulation
Labels : 5.2

15. REGULATORY INFORMATION

National regulatory information

Gefahrenguppe nach § 3 BGV B4: II, S+ (German regulatory requirements)

Produkt unterliegt dem Sprengstoffgesetz (SprengG; Stoffgruppe C). (German regulatory requirements)

Law on the Prevention and Control of Occupational Diseases

Regulations on Safety Management of Hazardous Chemicals

Identification of Major Hazard Installations for Dangerous Chemicals (GB 18218)

<table>
<thead>
<tr>
<th>Category</th>
<th>Threshold quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Organic peroxides</td>
<td>50 t</td>
</tr>
</tbody>
</table>

Hazardous Chemicals for Priority Management under SAWS : Listed

SAWS

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
- NZIoC (NZ) : On the inventory, or in compliance with the inventory
- ENCS (JP) : On the inventory, or in compliance with the inventory
- ISHL (JP) : On the inventory, or in compliance with the inventory
- KECI (KR) : On the inventory, or in compliance with the inventory
- PICCS (PH) : 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
16. OTHER INFORMATION

Full text of other abbreviations
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; IARC - 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; IECS - 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 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

Date format : yyyy/mm/dd

Disclaimer
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.

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