SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1 Product identifiers
Product name: Dicumyl peroxide
Product Number: 329541
Brand: Aldrich
Index-No.: 617-006-00-X
CAS-No.: 80-43-3

1.2 Relevant identified uses of the substance or mixture and uses advised against
Identified uses: Laboratory chemicals, Synthesis of substances

1.3 Details of the supplier of the safety data sheet
Company: Sigma-Aldrich Inc.
3050 SPRUCE ST
ST. LOUIS MO 63103
UNITED STATES
Telephone: +1 314 771-5765
Fax: +1 800 325-5052

1.4 Emergency telephone
Emergency Phone #: 800-424-9300 CHEMTREC (USA) +1-703-527-3887 CHEMTREC (International) 24 Hours/day; 7 Days/week

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture
GHS Classification in accordance with 29 CFR 1910 (OSHA HCS)
- Organic peroxides (Type F), H242
- Skin irritation (Category 2), H315
- Eye irritation (Category 2A), H319
- Reproductive toxicity (Category 1B), H360
- Short-term (acute) aquatic hazard (Category 2), H401
- Long-term (chronic) aquatic hazard (Category 2), H411

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

2.2 GHS Label elements, including precautionary statements
Pictogram

Aldrich - 329541
Signal Word: Danger

Hazard statement(s):
H242 Heating may cause a fire.
H315 Causes skin irritation.
H319 Causes serious eye irritation.
H360 May damage fertility or the unborn child.
H411 Toxic to aquatic life with long lasting effects.

Precautionary statement(s):
P201 Obtain special instructions before use.
P202 Do not handle until all safety precautions have been read and understood.
P210 Keep away from heat/ sparks/ open flames/ hot surfaces. No smoking.
P220 Keep/Store away from clothing/ combustible materials.
P234 Keep only in original container.
P264 Wash skin thoroughly after handling.
P273 Avoid release to the environment.
P280 Wear protective gloves/ protective clothing/ eye protection/ face protection.
P302 + P352 IF ON SKIN: Wash with plenty of soap and 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.
P308 + P313 IF exposed or concerned: Get medical advice/ attention.
P332 + P313 If skin irritation occurs: Get medical advice/ attention.
P337 + P313 If eye irritation persists: Get medical advice/ attention.
P362 Take off contaminated clothing and wash before reuse.
P391 Collect spillage.
P403 + P235 Store in a well-ventilated place. Keep cool.
P405 Store locked up.
P410 Protect from sunlight.
P420 Store away from other materials.
P501 Dispose of contents/ container to an approved waste disposal plant.

2.3 Hazards not otherwise classified (HNOC) or not covered by GHS - none

SECTION 3: Composition/information on ingredients

3.1 Substances
Synonyms:
Bis(α,α-dimethylbenzyl) peroxide
Bis(1-methyl-1-phenylethyl) peroxide

Formula: C_{18}H_{22}O_{2}
Molecular weight: 270.37 g/mol
CAS-No.: 80-43-3
EC-No.: 201-279-3
Index-No.: 617-006-00-X

<table>
<thead>
<tr>
<th>Component</th>
<th>Classification</th>
<th>Concentration</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bis(α,α-dimethylbenzyl) peroxide</td>
<td>Org. Perox. F; Skin Irrit.</td>
<td>&lt;= 100 %</td>
</tr>
</tbody>
</table>

Aldrich - 329541
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

General advice
Show this material safety data sheet to the doctor in attendance.

If inhaled
After inhalation: fresh air. Call in physician.

In case of skin contact
In case of skin contact: Take off immediately all contaminated clothing. Rinse skin with water/ shower. Consult a physician.

In case of eye contact
After eye contact: rinse out with plenty of water. Call in ophthalmologist. Remove contact lenses.

If swallowed
After swallowing: immediately make victim drink water (two glasses at most). Consult a physician.

4.2 Most important symptoms and effects, both acute and delayed
The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11

4.3 Indication of any immediate medical attention and special treatment needed
No data available

SECTION 5: Firefighting measures

5.1 Extinguishing media

Suitable extinguishing media
Water Foam Carbon dioxide (CO2) Dry powder

Unsuitable extinguishing media
For this substance/mixture no limitations of extinguishing agents are given.

5.2 Special hazards arising from the substance or mixture
Carbon oxides
Combustible.
Vapors are heavier than air and may spread along floors.
Forms explosive mixtures with air on intense heating.
Development of hazardous combustion gases or vapours possible in the event of fire.

5.3 Advice for firefighters
Stay in danger area only with self-contained breathing apparatus. Prevent skin contact by keeping a safe distance or by wearing suitable protective clothing.
5.4 Further information
Remove container from danger zone and cool with water. Prevent fire extinguishing water from contaminating surface water or the ground water system.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures
Advice for non-emergency personnel: Avoid inhalation of dusts. Avoid substance contact. Ensure adequate ventilation. Evacuate the danger area, observe emergency procedures, consult an expert.
For personal protection see section 8.

6.2 Environmental precautions
Do not let product enter drains.

6.3 Methods and materials for containment and cleaning up
Cover drains. Collect, bind, and pump off spills. Observe possible material restrictions (see sections 7 and 10). Take up carefully. Dispose of properly. Clean up affected area. Avoid generation of dusts.

6.4 Reference to other sections
For disposal see section 13.

SECTION 7: Handling and storage

7.1 Precautions for safe handling
Advice on safe handling
Work under hood. Do not inhale substance/mixture.

Advice on protection against fire and explosion
Keep away from open flames, hot surfaces and sources of ignition.

Hygiene measures
Immediately change contaminated clothing. Apply preventive skin protection. Wash hands and face after working with substance.
For precautions see section 2.2.

7.2 Conditions for safe storage, including any incompatibilities
Storage conditions
Tightly closed. Keep locked up or in an area accessible only to qualified or authorized persons. Separately or together with other organic peroxides only and away from sources of ignition and heat.

Storage stability
Recommended storage temperature
2 - 8 °C

Storage class
Storage class (TRGS 510): 5.2: Organic peroxides and self-reacting hazardous materials

7.3 Specific end use(s)
Apart from the uses mentioned in section 1.2 no other specific uses are stipulated
SECTION 8: Exposure controls/personal protection

8.1 Control parameters

**Ingredients with workplace control parameters**
Contains no substances with occupational exposure limit values.

8.2 Exposure controls

**Appropriate engineering controls**
Immediately change contaminated clothing. Apply preventive skin protection. Wash hands and face after working with substance.

**Personal protective equipment**

**Eye/face protection**
Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU). Safety glasses

**Skin protection**
required

**Body Protection**
protective clothing

**Respiratory protection**
required when dusts are generated.
Our recommendations on filtering respiratory protection are based on the following standards: DIN EN 143, DIN 14387 and other accompanying standards relating to the used respiratory protection system.

**Control of environmental exposure**
Do not let product enter drains.

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

a) Appearance
   Form: crystalline
   Color: beige

b) Odor
   No data available

c) Odor Threshold
   No data available

d) pH
   No data available

e) Melting point/freezing point
   Melting point/range: 39 - 41 °C (102 - 106 °F) - lit.

f) Initial boiling point and boiling range
   Decomposes below the boiling point.

g) Flash point
   110 °C (230 °F) - closed cup

h) Evaporation rate
   No data available

i) Flammability (solid, gas)
   No data available

j) Upper/lower flammability or
   No data available
### Explosive limits
- **k) Vapor pressure**: < 0.1 hPa at 60 °C (140 °F) - Regulation (EC) No. 440/2008, Annex, A.4
- **l) Vapor density**: No data available
- **m) Density**: 1.56 g/cm³ at 25 °C (77 °F) - lit.
  - **Relative density**: No data available
- **n) Water solubility**: 0.00043 g/l at 25 °C (77 °F) - OECD Test Guideline 105 - slightly soluble
- **o) Partition coefficient**: log Pow: 5.6 at 25 °C (77 °F) - OECD Test Guideline 117 - Potential bioaccumulation
- **p) Autoignition temperature**: No data available
- **q) Decomposition temperature**: 80 °C (176 °F) - Self-Accelerating decomposition temperature (SADT)
- **r) Viscosity**: No data available
- **s) Explosive properties**: Not explosive
- **t) Oxidizing properties**: No data available

### 9.2 Other safety information
- No data available

---

### SECTION 10: Stability and reactivity

#### 10.1 Reactivity
Forms explosive mixtures with air on intense heating. A range from approx. 15 Kelvin below the flash point is to be rated as critical. The following applies in general to flammable organic substances and mixtures: in correspondingly fine distribution, when whirled up a dust explosion potential may generally be assumed.

#### 10.2 Chemical stability
The product is chemically stable under standard ambient conditions (room temperature).

#### 10.3 Possibility of hazardous reactions
No data available

#### 10.4 Conditions to avoid
Strong heating.

#### 10.5 Incompatible materials
- Strong acids
- Strong bases
- Strong oxidizing agents

#### 10.6 Hazardous decomposition products
In the event of fire: see section 5
SECTION 11: Toxicological information

11.1 Information on toxicological effects

**Acute toxicity**
LD50 Oral - Rat - male and female - >= 2,000 mg/kg
(OECD Test Guideline 401)
Inhalation: No data available
LD50 Dermal - Rat - male and female - > 2,000 mg/kg
(OECD Test Guideline 402)
No data available

**Skin corrosion/irritation**
Skin - Rabbit
Result: Skin irritation - 4 h
(OECD Test Guideline 404)

**Serious eye damage/eye irritation**
Causes serious eye irritation. (Regulation (EC) No 1272/2008, Annex VI)

**Respiratory or skin sensitization**
Local lymph node assay (LLNA) - Mouse
Result: Does not cause skin sensitization.
(OECD Test Guideline 429)

**Germ cell mutagenicity**
Test Type: Hamster
Test system: Lungs
Metabolic activation: with and without metabolic activation
Method: OECD Test Guideline 471
Result: negative

**Carcinogenicity**
No data available
IARC: No ingredient of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.
NTP: No ingredient of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.
OSHA: No component of this product present at levels greater than or equal to 0.1% is on OSHA's list of regulated carcinogens.

**Reproductive toxicity**
May damage the unborn child.

**Specific target organ toxicity - single exposure**
No data available

**Specific target organ toxicity - repeated exposure**
No data available

**Aspiration hazard**
No data available

11.2 Additional Information

Repeated dose toxicity - Rat - male and female - NOAEL (No observed adverse effect level) - 60 mg/kg - LOAEL (Lowest observed adverse effect level) - 200 mg/kg

RTECS: SD8150000
To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

Systemic effects:

After uptake of large quantities:

constipation

Other information

Organic peroxides generally show a more or less strongly pronounced irritant effect on skin and mucous membranes. In some cases it has displayed a sensitising effect with allergic manifestations in predisposed persons. Mutagenic properties are associated with some compounds. The product should be handled with the care due when dealing with chemicals.

Further data:

Handle in accordance with good industrial hygiene and safety practice.

**SECTION 12: Ecological information**

**12.1 Toxicity**

<table>
<thead>
<tr>
<th>Toxicity to daphnia and other aquatic invertebrates</th>
<th>semi-static test EC50 - Daphnia magna (Water flea) - &gt; 0.39 mg/l - 48 h (OECD Test Guideline 202)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Toxicity to algae</td>
<td>Growth inhibition EC50 - Pseudokirchneriella subcapitata (algae) - &gt; 20 mg/l - 72 h (OECD Test Guideline 201)</td>
</tr>
<tr>
<td></td>
<td>Growth inhibition NOEC - Pseudokirchneriella subcapitata (algae) - 3.2 mg/l - 72 h (OECD Test Guideline 201)</td>
</tr>
<tr>
<td>Toxicity to bacteria</td>
<td>Respiration inhibition NOEC - Sludge Treatment - &gt; 1,000 mg/l - 30 min (OECD Test Guideline 209)</td>
</tr>
</tbody>
</table>

**12.2 Persistence and degradability**

| Biodegradability | aerobic - Exposure time 28 d Result: 0 % - Not biodegradable (Regulation (EC) No. 440/2008, Annex, C.4-D) |

**12.3 Bioaccumulative potential**

<table>
<thead>
<tr>
<th>Bioaccumulation</th>
<th>Cyprinus carpio (Carp) - 56 d - 0.01 mg/l(Bis(a,a-dimethylbenzyl) peroxide)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bioconcentration factor (BCF): 137 - 1,470 (OECD Test Guideline 305C)</td>
<td></td>
</tr>
</tbody>
</table>

**12.4 Mobility in soil**

No data available
12.5 Results of PBT and vPvB assessment
PBT/vPvB assessment not available as chemical safety assessment not required/not conducted

12.6 Endocrine disrupting properties
No data available

12.7 Other adverse effects
No data available

SECTION 13: Disposal considerations

13.1 Waste treatment methods

Product
Waste material must be disposed of in accordance with the national and local regulations. Leave chemicals in original containers. No mixing with other waste. Handle uncleaned containers like the product itself. See www.retrologistik.com for processes regarding the return of chemicals and containers, or contact us there if you have further questions.

SECTION 14: Transport information

DOT (US)
UN number: 3110 Class: 5.2
Proper shipping name: Organic peroxide type F, solid (Dicumyl peroxide, >52-100%)
Reportable Quantity (RQ):
Poison Inhalation Hazard: No

IMDG
UN number: 3110 Class: 5.2
Proper shipping name: ORGANIC PEROXIDE TYPE F, SOLID (DICUMYL PEROXIDE)
Marine pollutant: yes

IATA
UN number: 3110 Class: 5.2 (HEAT)
Proper shipping name: Organic peroxide type F, solid (Dicumyl peroxide)
Special Provisions: “Keep away from heat” label required.

SECTION 15: Regulatory information

SARA 302 Components
This material does not contain any components with a section 302 EHS TPQ.

SARA 313 Components
This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.

SARA 311/312 Hazards
Reactivity Hazard, Acute Health Hazard

Massachusetts Right To Know Components
No components are subject to the Massachusetts Right to Know Act.

SECTION 16: Other information

Further information
The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. Sigma-Aldrich Corporation and its Affiliates shall not be held liable for any damage resulting from handling or from contact with the above product. See www.sigma-aldrich.com and/or the reverse side of invoice or packing slip for additional terms and conditions of sale.

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