1. PRODUCT AND COMPANY IDENTIFICATION

Product name: β-Cyclodextrin
Product Number: C4805
Brand: Sigma
Supplier: Sigma-Aldrich
Telephone: +1 800-325-5832
Fax: +1 800-325-5052
Emergency Phone # (For both supplier and manufacturer): (314) 776-6555
Preparation Information: Sigma-Aldrich Corporation
                       Product Safety - Americas Region
                       1-800-521-8956

2. HAZARDS IDENTIFICATION

Emergency Overview

OSHA Hazards
  No known OSHA hazards
  Not a dangerous substance according to GHS.

HMIS Classification
  Health hazard: 0
  Flammability: 0
  Physical hazards: 0

NFPA Rating
  Health hazard: 0
  Fire: 0
  Reactivity Hazard: 0

Potential Health Effects

Inhalation: May be harmful if inhaled. May cause respiratory tract irritation.
Skin: May be harmful if absorbed through skin. May cause skin irritation.
Eyes: May cause eye irritation.
Ingestion: May be harmful if swallowed.

3. COMPOSITION/INFORMATION ON INGREDIENTS

Synonyms: Cycloheptaamylose
           Cyclomaltoheptaose
           Schardinger β-Dextrin
           Caraway

Formula: C_{42}H_{70}O_{35}
Molecular Weight: 1,134.98 g/mol

No ingredients are hazardous according to OSHA criteria.
4. FIRST AID MEASURES

If inhaled
If breathed in, move person into fresh air. If not breathing, give artificial respiration.

In case of skin contact
Wash off with soap and plenty of water.

In case of eye contact
Flush eyes with water as a precaution.

If swallowed
Never give anything by mouth to an unconscious person. Rinse mouth with water.

5. FIREFIGHTING MEASURES

Suitable extinguishing media
Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

Special protective equipment for firefighters
Wear self contained breathing apparatus for fire fighting if necessary.

Hazardous combustion products
Hazardous decomposition products formed under fire conditions. - Carbon oxides

6. ACCIDENTAL RELEASE MEASURES

Personal precautions
Avoid dust formation. Avoid breathing vapors, mist or gas.

Environmental precautions
Do not let product enter drains.

Methods and materials for containment and cleaning up
Sweep up and shovel. Keep in suitable, closed containers for disposal.

7. HANDLING AND STORAGE

Precautions for safe handling
Provide appropriate exhaust ventilation at places where dust is formed. Normal measures for preventive fire protection.

Conditions for safe storage
Keep container tightly closed in a dry and well-ventilated place.
Keep in a dry place.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Contains no substances with occupational exposure limit values.

Personal protective equipment

Respiratory protection
Respiratory protection is not required. Where protection from nuisance levels of dusts are desired, use type N95 (US) or type P1 (EN 143) dust masks. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

Hand protection
Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove’s outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

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

Skin and body protection
Choose body protection in relation to its type, to the concentration and amount of dangerous substances, and to the specific work-place. The type of protective equipment must be selected according to the concentration and amount
of the dangerous substance at the specific workplace.

**Hygiene measures**
General industrial hygiene practice.

### 9. PHYSICAL AND CHEMICAL PROPERTIES

**Appearance**
- **Form:** powder
- **Colour:** white

**Safety data**
- **pH:** no data available
- **Melting point/freezing point:** Melting point/range: 290 - 300 °C (554 - 572 °F)
- **Boiling point:** no data available
- **Flash point:** no data available
- **Ignition temperature:** no data available
- **Autoignition temperature:** no data available
- **Lower explosion limit:** no data available
- **Upper explosion limit:** no data available
- **Vapour pressure:** no data available
- **Density:** no data available
- **Water solubility:** no data available
- **Partition coefficient: n-octanol/water:** no data available
- **Relative vapour density:** no data available
- **Odour:** no data available
- **Odour Threshold:** no data available
- **Evaporation rate:** no data available

### 10. STABILITY AND REACTIVITY

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

**Possibility of hazardous reactions**
no data available

**Conditions to avoid**
no data available

**Materials to avoid**
Strong oxidizing agents

**Hazardous decomposition products**
Hazardous decomposition products formed under fire conditions. - Carbon oxides
Other decomposition products - no data available

### 11. TOXICOLOGICAL INFORMATION

**Acute toxicity**
- **Oral LD50**
  - LD50 Oral - rat - 18,800 mg/kg
**Inhalation LC50**
LC50 Inhalation - rat - 4 h - > 4.9 mg/l

**Dermal LD50**
LD50 Dermal - rat - > 2,000 mg/kg

**Other information on acute toxicity**
no data available

**Skin corrosion/irritation**
Skin - rabbit - Mild skin irritation

**Serious eye damage/eye irritation**
Eyes - rabbit - Mild eye irritation

**Respiratory or skin sensitization**
guinea pig - Did not cause sensitization on laboratory animals.

**Germ cell mutagenicity**
Tests on bacterial or mammalian cell cultures did not show mutagenic effects.

Genotoxicity in vitro - Chromosome aberration test in vitro - Other cell types - negative
Genotoxicity in vitro - in vitro assay - Other cell types - negative
Mutation in microorganisms
Genotoxicity in vitro - in vitro assay - Other cell types - negative
Micronucleus test

**Carcinogenicity**
Animal testing did not show any carcinogenic effects.

IARC: No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.
ACGIH: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by ACGIH.
NTP: No component 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 identified as a carcinogen or potential carcinogen by OSHA.

**Reproductive toxicity**
Reproductive toxicity - rat - Oral
Effects on Fertility: Post-implantation mortality (e.g., dead and/or resorbed implants per total number of implants). Effects on Newborn: Growth statistics (e.g., reduced weight gain).

no data available

**Teratogenicity**

**Specific target organ toxicity - single exposure (Globally Harmonized System)**
no data available

**Specific target organ toxicity - repeated exposure (Globally Harmonized System)**
no data available

**Aspiration hazard**
no data available

**Potential health effects**

**Inhalation**
May be harmful if inhaled. May cause respiratory tract irritation.

**Ingestion**
May be harmful if swallowed.

**Skin**
May be harmful if absorbed through skin. May cause skin irritation.
Eyes
May cause eye irritation.

**Signs and Symptoms of Exposure**
To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

**Synergistic effects**
no data available

**Additional Information**
Repeated dose toxicity - rat - Oral - 28 d
No adverse effect has been observed in chronic toxicity tests.

**RTECS:** Not available

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**12. ECOLOGICAL INFORMATION**

**Toxicity**
- **Toxicity to fish**
  LC50 - Cyprinus carpio (Carp) - 7,561 mg/l - 96 h

- **Toxicity to daphnia and other aquatic invertebrates**
  EC50 - Daphnia magna (Water flea) - > 100 mg/l - 48 h

- **Reproduction Test NOEC - Daphnia magna (Water flea)** - > 120 mg/l - 21 d

- **Toxicity to algae**
  - Desmodesmus subspicatus (green algae) - > 100 mg/l - 72 h

- **Toxicity to bacteria**
  Cell multiplication inhibition test - Pseudomonas putida - > 10,000 mg/l - 16 h

**Persistence and degradability**
- **Biodegradability**
  Zahn-Wellens Test
  Result: - Biodegradable
  Remarks: According to the results of tests of biodegradability this product is considered as being readily biodegradable.
  Result: - Totally biodegradable
  Remarks: Readily biodegradable, according to appropriate OECD test.

**Bioaccumulative potential**
no data available

**Mobility in soil**
no data available

**PBT and vPvB assessment**
no data available

**Other adverse effects**
- Biochemical Oxygen Demand (BOD) 700 mg/g
- Chemical Oxygen Demand (COD) 1,090 mg/g
- Additional ecological information no data available

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**13. DISPOSAL CONSIDERATIONS**

**Product**
Offer surplus and non-recyclable solutions to a licensed disposal company.

**Contaminated packaging**
Dispose of as unused product.

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**14. TRANSPORT INFORMATION**

**DOT (US)**
Not dangerous goods
IMDG
Not dangerous goods

IATA
Not dangerous goods

15. REGULATORY INFORMATION

OSHA Hazards
No known OSHA hazards

SARA 302 Components
SARA 302: No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

SARA 313 Components
SARA 313: 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
No SARA Hazards

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

Pennsylvania Right To Know Components

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<th>CAS-No.</th>
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<tbody>
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New Jersey Right To Know Components

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California Prop. 65 Components
This product does not contain any chemicals known to State of California to cause cancer, birth defects, or any other reproductive harm.

16. OTHER INFORMATION

Further information
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