

## MATERIAL SAFETY DATA SHEET

## BERBERINE HYDROCHLORIDE

**1. IDENTIFICATION OF SUBSTANCE**

**MSDS Name:** Berberine hydrochloride 90.0%

**Synonyms:** 6-dihydro-9,10-dimethoxy-, chloride; Berberine hydrochloride; Berberinium chloride; Benzo(g)(1,3)benzodioxolo(5,6-a)quinolizinium, 5,6-dihydro-9,10-dimethoxy-, chloride.

**Company Identification:**

Shaanxi Yougu Biotechnology Co., Ltd  
No.1589#, Zhuque South Rd, Xian City, China  
For information, call: +86-029-85390089  
Email: info@yougubio.com

**2. COMPOSITION/INFORMATION ON INGREDIENTS**

Name	CAS #	% by HPLC	EINECS/ELINCS
Berberine hydrochloride	633-65-8	90.0	211-195-9

**3. IDENTIFICATION OF THE HAZARDS**

Appearance: yellow powder.

**Caution!** May cause eye and skin irritation. May cause respiratory and digestive tract irritation. Light sensitive.

The toxicological properties of this material have not been fully investigated.

Target Organs: None known.

**Potential Health Effects**

**Eye:** May cause eye irritation.

**Skin:** May cause skin irritation.

**Ingestion:** May cause irritation of the digestive tract. The toxicological properties of this substance have not been fully investigated.

**Inhalation:** May cause respiratory tract irritation. The toxicological properties of this substance have not been fully investigated.

**Chronic:** No information found.

**4. FIRST AID MEASURES**

**Eyes:** Flush eyes with plenty of water for at least 15 minutes, occasionally lifting the upper and lower eyelids. Get medical aid.

**Skin:** Get medical aid. Flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Wash clothing before reuse.

**Ingestion:** Never give anything by mouth to an unconscious person. Get medical aid. Do NOT induce vomiting. If conscious and alert, rinse mouth and drink 2-4 cupfuls of milk or water.

**Inhalation:** Remove from exposure and move to fresh air immediately. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical aid.

**Notes to Physician:** Treat symptomatically and supportively.

**5. FIRE AND EXPLOSION DATA**

**General Information:** As in any fire, wear a self-contained breathing apparatus in pressure-demand, MSHA/NIOSH (approved or equivalent), and full protective gear. During a fire, irritating and highly toxic gases may be generated by thermal decomposition or combustion.

**Extinguishing Media:** In case of fire, use water, dry chemical, chemical foam, or alcohol-resistant foam. Use agent most appropriate to extinguish fire.

**Flash Point:** Not available.

**Autoignition Temperature:** Not available.

**Explosion Limits, Lower:** Not available.

**Upper:** Not available.

**NFPA Rating:** (estimated) Health: Flammability: Instability:

**6. ACCIDENTAL RELEASE MEASURES**

**General Information:** Use proper personal protective equipment as indicated in Section 8.

**Spills/Leaks:** Clean up spills immediately, observing precautions in the Protective Equipment section. Sweep up or absorb material, then place into a suitable clean, dry, closed container for disposal. Provide ventilation.

**7. HANDLING AND STORAGE**

**Handling:** Wash thoroughly after handling. Remove contaminated clothing and wash before reuse. Use with adequate ventilation. Avoid contact with eyes, skin, and clothing. Keep container tightly closed. Avoid ingestion and inhalation. Store protected from light.

**Storage:** Keep container closed when not in use. Store in a tightly closed container. Store in a cool, dry, well-ventilated area away from incompatible substances. Store protected from light.

**8. EXPOSURE CONTROLS AND PERSONAL PROTECTION**

**Engineering Controls:** Facilities storing or utilizing this material should be equipped with an eyewash facility and a safety shower. Use adequate ventilation to keep airborne concentrations low.

**Exposure Limits**

Chemical Name	ACGIH	NIOSH	OSHA - Final PELs
Berberine hydrochloride	None listed	None listed	None listed

**OSHA Vacated PELs:** Berberine hydrochloride hydrate: No OSHA Vacated PELs are listed for this chemical.

**Personal Protective Equipment**

**Eyes:** Wear appropriate protective eyeglasses or chemical safety goggles as described by OSHA's eye and face protection regulations in 29 CFR 1910.133 or European Standard EN166.

**Skin:** Wear appropriate protective gloves to prevent skin exposure.

**Clothing:** Wear appropriate protective clothing to prevent skin exposure.

**Respirators:** A respiratory protection program that meets OSHA's 29 CFR 1910.134 and ANSI Z88.2 requirements or European Standard EN 149 must be followed whenever workplace conditions warrant respirator use. Wear a

NIOSH/MSHA or European Standard EN 149 approved full-facepiece airline respirator in the positive pressure mode with emergency escape provisions.

#### 9. PHYSICAL AND CHEMICAL PROPERTIES

Physical State: Powder

Appearance: yellow

Odor: None reported.

pH: Not available.

Vapor Pressure: Not available.

Vapor Density: Not available.

Evaporation Rate: Not available.

Viscosity: Not available.

Boiling Point: Not available.

Freezing/Melting Point: 200 deg C

Decomposition Temperature: Not available.

Solubility: soluble in cold water

Specific Gravity/Density: Not available.

Molecular Formula:  $C_{20}H_{18}ClNO_4$

Molecular Weight: 371.82

#### 10. STABILITY AND REACTIVITY DATA

**Chemical Stability:** Stable under normal temperatures and pressures.

**Conditions to Avoid:** Incompatible materials, light, dust generation, strong oxidants.

**Incompatibilities with Other Materials:** Strong oxidizing agents.

**Hazardous Decomposition Products:** Hydrogen chloride, nitrogen oxides, carbon monoxide, irritating and toxic fumes and gases, carbon dioxide, nitrogen gas.

**Hazardous Polymerization:** Has not been reported.

#### 11. TOXICOLOGICAL INFORMATION

**RTECS#:**

**CAS# 633-65-8:** DR9866400

**LD50/LC50:**

**CAS# 633-65-8:**

Oral, mouse: LD50 = >29586 mg/kg;

Oral, rat: LD50 = >15 gm/kg;

**Carcinogenicity:**

CAS# 633-65-8: Not listed by ACGIH, IARC, NTP, or CA Prop 65.

**Epidemiology:** No information found

**Teratogenicity:** No information found

**Reproductive Effects:** No information found

**Mutagenicity:** DNA damage(Mammal, unspecified Lymphocyte) = 22 mol/L.

**Neurotoxicity:** No information found

**Other Studies:**

## 12. ECOLOGICAL INFORMATIONS

**Ecotoxicity:** No data available. No information available.

**Environmental:** No information found.

**Physical:** No information found.

**Other:** No information available.

## 13. DISPOSAL CONSIDERATIONS

Chemical waste generators must determine whether a discarded chemical is classified as a hazardous waste. US EPA guidelines for the classification determination are listed in 40 CFR Parts 261.3. Additionally, waste generators must consult state and local hazardous waste regulations to ensure complete and accurate classification.

**RCRA P-Series:** None listed.

**RCRA U-Series:** None listed.

## 14. TRANSPORT INFORMATION

DOT (US):	Not dangerous goods
IMDG:	Not dangerous goods
IATA:	Not dangerous goods

## 15. REGULATORY INFORMATION

### US FEDERAL

#### TSCA

CAS# 633-65-8 is listed on the TSCA inventory.

#### Health & Safety Reporting List

None of the chemicals are on the Health & Safety Reporting List.

#### Chemical Test Rules

None of the chemicals in this product are under a Chemical Test Rule.

#### Section 12b

None of the chemicals are listed under TSCA Section 12b.

#### TSCA Significant New Use Rule

None of the chemicals in this material have a SNUR under TSCA.

#### CERCLA Hazardous Substances and corresponding RQs

None of the chemicals in this material have an RQ.

#### SARA Section 302 Extremely Hazardous Substances

None of the chemicals in this product have a TPQ.

**Section 313** No chemicals are reportable under Section 313.

#### Clean Air Act:

This material does not contain any hazardous air pollutants.

This material does not contain any Class 1 Ozone depletors.

This material does not contain any Class 2 Ozone depletors.

**Clean Water Act:**

None of the chemicals in this product are listed as Hazardous Substances under the CWA.

None of the chemicals in this product are listed as Priority Pollutants under the CWA.

None of the chemicals in this product are listed as Toxic Pollutants under the CWA.

**OSHA:**

None of the chemicals in this product are considered highly hazardous by OSHA.

**STATE**

CAS# 633-65-8 is not present on state lists from CA, PA, MN, MA, FL, or NJ.

**California Prop 65**

California No Significant Risk Level: None of the chemicals in this product are listed.

**European/International Regulations****European Labeling in Accordance with EC Directives****Hazard Symbols:**

Not available.

**Risk Phrases:****Safety Phrases:**

S 24/25 Avoid contact with skin and eyes.

S 37 Wear suitable gloves.

S 45 In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).

S 28A After contact with skin, wash immediately with plenty of water

**WGK (Water Danger/Protection)**

CAS# 633-65-8: No information available.

**Canada - DSL/NDSL**

CAS# 633-65-8 is listed on Canada's NDSL List.

**Canada - WHMIS**

This product has a WHMIS classification of D2B.

This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations and the MSDS contains all of the information required by those regulations.

**Canadian Ingredient Disclosure List****16. DISCLAIMER**

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