SAFETY DATA SHEETS

According to the UN GHS revision 8

Version: 1.0
Creation Date: July 15, 2019
Revision Date: July 15, 2019

1. SECTION 1: Identification

1.1. GHS Product identifier

Product name Dapsone

1.2. Other means of identification

Product number -

Other names 4,4'-Diaminodiphenylsulfone; Benzenamine, 4,4‘-sulfonylbis-; 4-(4-aminophenyl)sulfonylaniline

1.3. Recommended use of the chemical and restrictions on use

Identified uses Adhesives and sealant chemicals,Intermediates

Uses advised against no data available

1.4. Supplier's details

Company Shandong Sincere Chemical Co., Ltd.

Address No.21 Industrial North Road, Licheng District, Jinan City, Shandong Province, China

Telephone (+86) 188-6575-9396

1.5. Emergency phone number

Emergency phone number (+86) 188-6575-9396

Service hours Monday to Friday, 9am-5pm (Standard time zone: UTC/GMT +8 hours).

2. SECTION 2: Hazard identification

2.1. Classification of the substance or mixture

Acute toxicity - Category 4, Oral

2.2. GHS label elements, including precautionary statements

Pictogram(s)

Signal word Warning

Hazard statement(s) H302 Harmful if swallowed

Precautionary statement(s)

Prevention P264 Wash ... thoroughly after handling.P270 Do not eat, drink or smoke when using this product.

Response P301+P317 IF SWALLOWED: Get medical help.P330 Rinse mouth.

Storage none

Disposal	P501 Dispose of contents/container to an appropriate treatment and disposal facility in accordance with applicable laws and regulations, and product characteristics at time of disposal.

2.3. Other hazards which do not result in classification

no data available

3. SECTION 3: Composition/information on ingredients

3.1. Substances

Chemical name	Common names and synonyms	CAS number	EC number	Concentration
Guanidine hydrochloride	Guanidine hydrochloride	50-01-1	200-002-3	99.7%

4. SECTION 4: First-aid measures

4.1. Description of necessary first-aid measures

Medical attention is required. Consult a doctor. Show this safety data sheet (SDS) to the doctor in attendance.

If inhaled

Move the victim into fresh air. If breathing is difficult, give oxygen. If not breathing, give artificial respiration and consult a doctor immediately. Do not use mouth to mouth resuscitation if the victim ingested or inhaled the chemical.

Following skin contact

Take off contaminated clothing immediately. Wash off with soap and plenty of water. Consult a doctor.

Following eye contact

Rinse with pure water for at least 15 minutes. Consult a doctor.

Following ingestion

Rinse mouth with water. Do not induce vomiting. Never give anything by mouth to an unconscious person. Call a doctor or Poison Control Center immediately.

4.2. Most important symptoms/effects, acute and delayed

SYMPTOMS: Symptoms of exposure to this compound include somnolence, retinal changes, cyanosis, jaundice, changes in tubules and other kidney changes, hemolysis with or without anemia, joint effects, hepatitis, dermatitis and peripheral neuritis. Other symptoms include peripheral motor neuropathy, retinal damage, optic atrophy and, in large doses, intravascular hemolysis, methemoglobinemia, renal failure, hemorrhages and exudates in fundi, localized capillary non-perfusion by angiography, and permanent poor vision. Prolonged skin exposure may lead to irritation. Severe eye irritation, irritation of the nose and throat and sneezing also occur. Exposure may cause restlessness, coma, hematuria, gastrointestinal irritation, maculopapular, erythematous skin eruptions, fever, mental disturbances, visual disturbances, oliguria or anuria with azotemia, agranulocytosis, thrombocytopenia, purpura, conjunctival injection, bullous lesions of the skin,

petechiae, increased erythema, injury from sunlight, renal damage and death. It may also cause sore throat, pallor, aplastic anemia, other blood dyscrasias, exfoliative dermatitis, erythema multiforme, toxic epidermal necrolysis, morbilliform and scarlatiniform reactions, urticaria, erythema nodosum, muscle weakness, nausea, vomiting, abdominal pain, vertigo, blurred vision, tinnitus, insomnia, headache, psychosis, phototoxicity, tachycardia, albuminuria, the nephrotic syndrome, hypoalbuminemia without proteinuria, renal papillary necrosis, male infertility, drug-induced lupus erythematosus, an infectious mononucleosis-like syndrome, severe anoxia, hyperexcitability, methemoglobin induced depression and convulsions. Other symptoms may include anorexia, dizziness, nervousness, lymphadenitis, fixed drug eruptions, and eosinophilia. This compound can cause Heinz-body formation, paresthesia, pruritus, exacerbation of lepromatous leprosy in malnourished persons, malaise, hepatic necrosis and lymphadenopathy. It can also cause leukopenia, pseudo-leukemia and abnormalities in liver function tests. ACUTE/CHRONIC HAZARDS: This compound is harmful if swallowed, inhaled or absorbed through the skin. It may cause irritation. When heated to decomposition it emits very toxic fumes of carbon monoxide, carbon dioxide, nitrogen oxides and sulfur oxides. (NTP, 1992)

4.3. Indication of immediate medical attention and special treatment needed, if necessary

Methylene blue is the first-choice treatment of methemoglobinemia, but it is not readily available in most Korean emergency departments because of an import suspension. An 84-year-old woman with dapsone-induced massive methemoglobinemia visited our emergency department for unclear mentality and cyanosis. Because methylene blue was not available, we intravenously administrated vitamin C (VC) for symptomatic methemoglobinemia, although VC is not a universally accepted treatment. Vitamin C (10 g intravenously) administered 6 hourly successfully treated the dapsone-induced methemoglobinemia and did not adversely affect renal functions. Thus, we recommend that if methylene blue is unavailable, 6 hourly intravenous administrations of 10 g of VC should be considered for dapsone-induced methemoglobinemia.

5. SECTION 5: Fire-fighting measures

5.1. Suitable extinguishing media

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

5.2. Specific hazards arising from the chemical

This chemical is probably combustible. (NTP, 1992)

5.3. Special protective actions for fire-fighters

Wear self-contained breathing apparatus for firefighting if necessary.

6. SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

Avoid dust formation. Avoid breathing mist, gas or vapours.Avoid contacting with skin and eye. Use personal protective equipment.Wear chemical impermeable gloves. Ensure adequate ventilation.Remove all sources of ignition. Evacuate personnel to safe areas.Keep people away from and upwind of spill/leak.

6.2. Environmental precautions

Prevent further spillage or leakage if it is safe to do so. Do not let the chemical enter drains. Discharge into the environment must be avoided.

6.3. Methods and materials for containment and cleaning up

ACCIDENTAL RELEASE MEASURES: Personal precautions, protective equipment and emergency procedures: Use personal protective equipment. Avoid dust formation. Avoid breathing vapors, mist or gas. Ensure adequate ventilation. Avoid breathing dust; Environmental precautions: Do not let product enter drains; Methods and materials for containment and cleaning up: Pick up and arrange disposal without creating dust. Sweep up and shovel. Keep in suitable, closed containers for disposal.

7. SECTION 7: Handling and storage

7.1. Precautions for safe handling

Handling in a well ventilated place. Wear suitable protective clothing. Avoid contact with skin and eyes. Avoid formation of dust and aerosols. Use non-sparking tools. Prevent fire caused by electrostatic discharge steam.

7.2. Conditions for safe storage, including any incompatibilities

Keep container tightly closed in a dry and well-ventilated place. Light sensitive.

8. SECTION 8: Exposure controls/personal protection

8.1. Control parameters

Occupational Exposure limit values

no data available

Biological limit values

no data available

8.2. Appropriate engineering controls

Ensure adequate ventilation. Handle in accordance with good industrial hygiene and safety practice. Set up emergency exits and the risk-elimination area.

8.3. Individual protection measures, such as personal protective equipment (PPE)

Eye/face protection

Wear tightly fitting safety goggles with side-shields conforming to EN 166(EU) or NIOSH (US).

Skin protection

Wear fire/flame resistant and impervious clothing. Handle with gloves. Gloves must be inspected prior to use. Wash and dry hands. The selected protective gloves

have to satisfy the specifications of EU Directive 89/686/EEC and the standard EN 374 derived from it.

Respiratory protection

If the exposure limits are exceeded, irritation or other symptoms are experienced, use a full-face respirator.

Thermal hazards

no data available

9. SECTION 9: Physical and chemical properties and safety characteristics

Physical state	Solid. Crystalline.
Colour	White to creamy.
Odour	Odorless
Melting point/freezing point	>= 175 - <= 176 °C. Atm. press.:Ca. 1 atm. Remarks:Http://ntp.niehs.nih.gov/index.cfm?objectid=E8834698-BDB5-82 F8-FB8 AF8 E8 BF9 A9 C9 F.
Boiling point or initial boiling point and boiling range	438 °C. Remarks:Based on adapted Stein & Brown method.
Flammability	no data available
Lower and upper explosion limit/flammability limit	no data available
Flash point	24°C(lit.)
Auto-ignition temperature	Remarks:Not self-heating, see details below.
Decomposition temperature	no data available
pH	no data available
Kinematic viscosity	no data available
Solubility	>37.2 [ug/mL]
Partition coefficient n-octanol/water	log Pow = Ca. 0.97. Temperature:25 °C. Remarks:Unknown.
Vapour pressure	< 0.002 Pa. Temperature:20 °C.;< 0.004 Pa. Temperature:25 °C.
Density and/or relative density	Ca. 0.82 g/cm³. Temperature:20 °C.;Ca. 1.361 g/cm³.
Relative vapour density	8.3 (NTP, 1992) (Relative to Air)
Particle characteristics	no data available

10. SECTION 10: Stability and reactivity

10.1. Reactivity

Sensitive to oxidation and light. Insoluble in water.

10.2. Chemical stability

Stable under recommended storage conditions.

10.3. Possibility of hazardous reactions

4,4'-SULFONYLDIANILINE can neutralize acids in exothermic reactions to form salts plus water. May be incompatible with isocyanates, halogenated organics, peroxides, phenols (acidic), epoxides, anhydrides, and acid halides. Flammable gaseous hydrogen is generated in combination with strong reducing agents, such as hydrides. Incompatible with strong oxidizing agents. Also incompatible with epoxy resins under uncontrolled conditions (NTP, 1992).

10.4. Conditions to avoid

no data available

10.5. Incompatible materials

Incompatible materials: Strong oxidizing agents

10.6. Hazardous decomposition products

When heated to decomposition it emits very toxic fumes of /nitrogen and sulfur oxides/.

11. SECTION 11: Toxicological information

Acute toxicity

- Oral: LD50 Rat oral 1000 mg/kg
- Inhalation: no data available
- Dermal: no data available

Skin corrosion/irritation

no data available

Serious eye damage/irritation

no data available

Respiratory or skin sensitization

no data available

Germ cell mutagenicity

no data available

Carcinogenicity

Inadequate evidence of carcinogenicity in humans. Limited evidence of carcinogenicity in animals. OVERALL EVALUATION: Group 3: The agent is not classifiable as to its carcinogenicity to humans.

Reproductive toxicity

no data available

STOT-single exposure

no data available

STOT-repeated exposure

no data available

Aspiration hazard
no data available

12. SECTION 12: Ecological information

12.1. Toxicity

- Toxicity to fish: LC50 - Cyprinus carpio - > 100 mg/L - 96 h.
- Toxicity to daphnia and other aquatic invertebrates: no data available
- Toxicity to algae: EC50 - Pseudokirchneriella subcapitata (previous names: Raphidocelis subcapitata, Selenastrum capricornutum) - ca. 0.52 mg/L - 72 h.
- Toxicity to microorganisms: EC50 - activated sludge of a predominantly domestic sewage - > 1 000 mg/L - 3 h. Remarks:(loading rate).

12.2. Persistence and degradability

no data available

12.3. Bioaccumulative potential

An estimated BCF of 3 was calculated in fish for dapsone(SRC), using a log Kow of 0.97(1) and a regression-derived equation(2). According to a classification scheme(3), this BCF suggests the potential for bioconcentration in aquatic organisms is low(SRC).

12.4. Mobility in soil

Using a structure estimation method based on molecular connectivity indices(1), the Koc of dapsone can be estimated to be 260(SRC). According to a classification scheme(2), this estimated Koc value suggests that dapsone is expected to have moderate mobility in soil. Aromatic amines are expected to bind strongly to humus or organic matter in soils due to the high reactivity of the aromatic amino group(3,4), suggesting that mobility may be much lower in some soils(SRC).

12.5. Other adverse effects

no data available

13. SECTION 13: Disposal considerations

13.1. Disposal methods

Product

The material can be disposed of by removal to a licensed chemical destruction plant or by controlled incineration with flue gas scrubbing. Do not contaminate water, foodstuffs, feed or seed by storage or disposal. Do not discharge to sewer systems.

Contaminated packaging

Containers can be triply rinsed (or equivalent) and offered for recycling or reconditioning. Alternatively, the packaging can be punctured to make it unusable for other purposes and then be disposed of in a sanitary landfill. Controlled incineration with flue gas scrubbing is possible for combustible packaging materials.

14. SECTION 14: Transport information

14.1. UN Number

ADR/RID: Not dangerous goods. (For reference only, please check.)

IMDG: Not dangerous goods. (For reference only, please check.)

IATA: Not dangerous goods. (For reference only, please check.)

14.2. UN Proper Shipping Name

ADR/RID: Not dangerous goods. (For reference only, please check.)

IMDG: Not dangerous goods. (For reference only, please check.)

IATA: Not dangerous goods. (For reference only, please check.)

14.3. Transport hazard class(es)

ADR/RID: Not dangerous goods. (For reference only, please check.)

IMDG: Not dangerous goods. (For reference only, please check.)

IATA: Not dangerous goods. (For reference only, please check.)

14.4. Packing group, if applicable

ADR/RID: Not dangerous goods. (For reference only, please check.)

IMDG: Not dangerous goods. (For reference only, please check.)

IATA: Not dangerous goods. (For reference only, please check.)

14.5. Environmental hazards

ADR/RID: No

IMDG: No

IATA: No

14.6. Special precautions for user

no data available

14.7. Transport in bulk according to IMO instruments

no data available

---

15. SECTION 15: Regulatory information

15.1. Safety, health and environmental regulations specific for the product in question

Chemical name	Common names and synonyms	CAS number	EC number
Dapsone	Dapsone	80-08-0	201-248-4
European Inventory of Existing Commercial Chemical Substances (EINECS)	Listed.		
EC Inventory	Listed.		
United States Toxic Substances Control Act (TSCA) Inventory	Listed.		
China Catalog of Hazardous chemicals 2015	Not Listed.		
New Zealand Inventory of Chemicals (NZIoC)	Listed.		
Philippines Inventory of Chemicals and Chemical Substances (PICCS)	Listed.		
Vietnam National Chemical Inventory	Listed.		

Chinese Chemical Inventory of Existing Chemical Substances (China IECSC)	Listed.
Korea Existing Chemicals List (KECL)	Listed.

16. SECTION 16: Other information

Information on revision

Creation Date July 15, 2019
Revision Date July 15, 2019

Abbreviations and acronyms

- CAS: Chemical Abstracts Service
- ADR: European Agreement concerning the International Carriage of Dangerous Goods by Road
- RID: Regulation concerning the International Carriage of Dangerous Goods by Rail
- IMDG: International Maritime Dangerous Goods
- IATA: International Air Transportation Association
- TWA: Time Weighted Average
- STEL: Short term exposure limit
- LC50: Lethal Concentration 50%
- LD50: Lethal Dose 50%
- EC50: Effective Concentration 50%

References

- IPCS - The International Chemical Safety Cards (ICSC), website: http://www.ilo.org/dyn/icsc/showcard.home
- HSDB - Hazardous Substances Data Bank, website: https://toxnet.nlm.nih.gov/newtoxnet/hsdb.htm
- IARC - International Agency for Research on Cancer, website: http://www.iarc.fr/
- eChemPortal - The Global Portal to Information on Chemical Substances by OECD, website: http://www.echemportal.org/echemportal/index?pageID=0&request_locale=en
- CAMEO Chemicals, website: http://cameochemicals.noaa.gov/search/simple
- ChemIDplus, website: http://chem.sis.nlm.nih.gov/chemidplus/chemidlite.jsp
- ERG - Emergency Response Guidebook by U.S. Department of Transportation, website: http://www.phmsa.dot.gov/hazmat/library/erg
- Germany GESTIS-database on hazard substance, website: http://www.dguv.de/ifa/gestis/gestis-stoffdatenbank/index-2.jsp
- ECHA - European Chemicals Agency, website: https://echa.europa.eu/