Dimethyl sulfoxide (DMSO)

Use of the preparation:
For laboratory use.
Company identification:
BIO-HELIX Co.,LTD.
Site: http://www.bio-helix.com
E-mail: info@bio-helix.com

1. IDENTIFICATION OF THE PREPARATION/SUBSTANCE AND OF THE COMPANY

Product identifiers
Product name: Dimethyl sulfoxide (DMSO)
Product code: MB601-D
CAS-No.: 67-68-5

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

2. HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture
Not a hazardous substance or mixture according to Regulation (EC) No. 1272/2008.
This substance is not classified as dangerous according to Directive 67/548/EEC.

2.2 Label elements
The product does not need to be labelled in accordance with EC directives or respective national laws.

2.3 Other hazards - none

3. COMPOSITION/INFORMATION ON INGREDIENTS

3.1 Substances
Synonyms: DMSO, Methyl sulfoxide
Formula: C2H6OS
Molecular Weight: 78.13 g/mol
Component: Dimethyl sulfoxide
CAS-No.: 67-68-5
EC-No.: 200-664-3
Concentration: -

4. FIRST AID MEASURES

4.1 Description of first aid measures
General advice
Consult a physician. Show this safety data sheet to the doctor in attendance.

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

In case of skin contact
Wash off with soap and plenty of water. Consult a physician.
In case of eye contact
Flush eyes with water as a precaution.
If swallowed
Do NOT induce vomiting. Never give anything by mouth to an unconscious person. Rinse mouth
with water.
Consult a physician.
4.2 Most important symptoms and effects, both acute and delayed
Effects due to ingestion may include: Nausea, Fatigue, Headache
4.3 Indication of any immediate medical attention and special treatment needed
no data available

5. FIRE-FIGHTING MEASURES
5.1 Extinguishing media
Suitable extinguishing media
For small (incipient) fires, use media such as "alcohol" foam, dry chemical, or carbon dioxide. For
large fires, apply water from as far as possible. Use very large quantities (flooding) of water
applied as a mist or spray; solid streams of water may be ineffective. Cool all affected containers
with flooding quantities of water.
5.2 Special hazards arising from the substance or mixture
Carbon oxides, Sulphur oxides
5.3 Advice for firefighters
Wear self contained breathing apparatus for firefighting if necessary.
5.4 Further information
Use water spray to cool unopened containers.

6. ACCIDENTAL RELEASE MEASURES
6.1 Personal precautions, protective equipment and emergency procedures
Avoid breathing vapors, mist or gas. Remove all sources of ignition. Beware of vapours accumulating
to form explosive concentrations. Vapours can accumulate in low areas.
6.2 Environmental precautions
Prevent further leakage or spillage if safe to do so. Do not let product enter drains.
6.3 Methods and materials for containment and cleaning up
Contain spillage, and then collect with an electrically protected vacuum cleaner or by wet-brushing
and place in container for disposal according to local regulations (see section 13). Keep in suitable,
closed containers for disposal.
6.4 Reference to other sections
For disposal see section 13.

7. HANDLING AND STORAGE
7.1 Precautions for safe handling
Avoid inhalation of vapour or mist.
Keep away from sources of ignition - No smoking.Take measures to prevent the build up of
electrostatic
7.2 Conditions for safe storage, including any incompatibilities
Store in cool place    Keep container tightly closed in a dry and well-ventilated place.
Store under inert gas hygroscopic
7.3 Specific end uses no data available

8. EXPOSURE CONTROLS/PERSONAL PROTECTION
8.1 Control parameters
Components with workplace control parameters
8.2 Exposure controls
Appropriate engineering controls
Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.
Personal protective equipment
Eye/face protection
Safety glasses with side-shields conforming to EN166 Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).
Skin protection
The selected protective gloves have to satisfy the specifications of EU Directive 89/686/EEC and the standard EN 374 derived from it.
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.
Body Protection
Impervious clothing. The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.
Respiratory protection
Where risk assessment shows air-purifying respirators are appropriate use a full-face respirator with multi-purpose combination (US) or type ABEK (EN 14387) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

9. PHYSICAL AND CHEMICAL PROPERTIES
9.1 Information on basic physical and chemical properties
a) Appearance
Form: liquid, clear
Colour: colourless
b) Odour
no data available
c) Odour Threshold
no data available
d) pH
no data available
e) Melting point/freezing point
Melting point/range: 16 - 19 °C
f) Initial boiling point and boiling range
189 °C
87 °C - closed cup
g) Flash point
h) Evaporation rate  
   no data available

i) Flammability (solid, gas)  
   no data available

j) Upper/lower flammability or explosive limits
   Upper explosion limit: 42 % (V)
   Lower explosion limit: 3.5 % (V)

k) Vapour pressure  
   0.55 hPa at 20 °C

l) Vapour density  
   2.70 - (Air = 1.0)

m) Relative density  
   1.1 g/mL

n) Water solubility  
   completely miscible

o) Partition coefficient: noctanol/water  
   log Pow: -2.03

p) Autoignition temperature  
   no data available

q) Decomposition temperature  
   no data available

r) Viscosity  
   no data available

s) Explosive properties  
   no data available

t) Oxidizing properties  
   no data available

9.2 Other safety information  
   no data available

10. STABILITY AND REACTIVITY

10.1 Reactivity  
   no data available

10.2 Chemical stability  
   no data available

10.3 Possibility of hazardous reactions  
   no data available

10.4 Conditions to avoid  
   Heat, flames and sparks.

10.5 Incompatible materials  
   Acid chlorides, Phosphorus halides, Strong acids, Strong oxidizing agents, Strong reducing agents

10.6 Hazardous decomposition products  
   Other decomposition products - no data available

11. TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects

Acute toxicity
LD50 Oral - rat - 14.500 mg/kg
LC50 Inhalation - rat - 4 h - 40250 ppm
LD50 Dermal - rabbit - > 5.000 mg/kg

Skin corrosion/irritation  
   Skin - rabbit - No skin irritation - 4 h

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

Respiratory or skin sensitization  
   no data available

Germ cell mutagenicity

Genotoxicity in vitro - mouse - lymphocyte
Cytogenetic analysis
Genotoxicity in vitro - mouse - lymphocyte
Mutation in mammalian somatic cells.
Genotoxicity in vivo - rat - Intraperitoneal
Cytogenetic analysis
Genotoxicity in vivo - mouse - Intraperitoneal
DNA damage
Carcinogenicity
Carcinogenicity - rat - Oral
Tumorigenic   Equivocal tumorigenic agent by RTECS criteria. Skin and Appendages: Other: Tumors.
Carcinogenicity - mouse - Oral
Tumorigenic   Equivocal tumorigenic agent by RTECS criteria. Leukaemia Skin and Appendages: Other: Tumors.
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.

Reproductive toxicity
Reproductive toxicity - rat - Intraperitoneal
Effects on Fertility: Abortion.
Reproductive toxicity - rat - Intraperitoneal
Effects on Fertility: Post-implantation mortality (e.g., dead and/or resorbed implants per total number of implants).
Reproductive toxicity - rat - Subcutaneous
Effects on Fertility: Post-implantation mortality (e.g., dead and/or resorbed implants per total number of implants). Effects on Fertility: Litter size (e.g.; # fetuses per litter; measured before birth).
Reproductive toxicity - mouse - Oral
Effects on Fertility: Pre-implantation mortality (e.g., reduction in number of implants per female; total number of implants per corpora lutea). Effects on Embryo or Fetus: Fetotoxicity (except death, e.g., stunted fetus).
Specific Developmental Abnormalities: Musculoskeletal system.
Developmental Toxicity - mouse - Intraperitoneal
Effects on Embryo or Fetus: Fetotoxicity (except death, e.g., stunted fetus). Specific Developmental Abnormalities: Musculoskeletal system.

Specific target organ toxicity - single exposure no data available
Specific target organ toxicity - repeated exposure 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.

Aggravated Medical Condition Avoid contact with DMSO solutions containing toxic materials or materials with unknown toxicological properties. Dimethyl sulfoxide is readily absorbed through skin and may carry such materials into the body.

Signs and Symptoms of Exposure
Effects due to ingestion may include:, Nausea, Fatigue, Headache

Additional Information
RTECS: PV6210000
12. ECOLOGICAL INFORMATION

12.1 Toxicity
Toxicity to fish
LC50 - Pimephales promelas (fathead minnow) - 34,000 mg/l - 96 h
LC50 - Oncorhynchus mykiss (rainbow trout) - 35,000 mg/l - 96 h
Toxicity to daphnia and other aquatic invertebrates.
EC50 - Daphnia pulex (Water flea) - 27,500 mg/l
Toxicity to algae EC50 - Lepomis macrochirus (Bluegill) - > 400,000 mg/l - 96 h

12.2 Persistence and degradability
no data available

12.3 Bioaccumulative potential
no data available

12.4 Mobility in soil
no data available

12.5 Results of PBT and vPvB assessment
no data available

12.6 Other adverse effects
no data available

13. DISPOSAL CONSIDERATIONS

13.1 Waste treatment methods
Product
This combustible material may be burned in a chemical incinerator equipped with an afterburner and scrubber. Offer surplus and non-recyclable solutions to a licensed disposal company. Contact a licensed professional waste disposal service to dispose of this material.
Contaminated packaging
Dispose of as unused product.

14. TRANSPORT INFORMATION

14.1 UN number
ADR/RID: - IMDG: - IATA: -

14.2 UN proper shipping name
ADR/RID: Not dangerous goods
IMDG: Not dangerous goods
IATA: Not dangerous goods

14.3 Transport hazard class(es)
ADR/RID: - IMDG: - IATA: -

14.4 Packaging group
ADR/RID: - IMDG: - IATA: -

14.5 Environmental hazards
ADR/RID: no IMDG Marine pollutant: no IATA: no

14.6 Special precautions for user
no data available

15. REGULATORY INFORMATION

This safety datasheet complies with the requirements of Regulation (EC) No. 1907/2006.

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture
no data available

15.2 Chemical Safety Assessment
no data available
16. OTHER INFORMATION
This material is sold for research and development purposes only. It is not for any human or animal therapeutic or clinical diagnostic use. It is not intended for food, drug, household, agricultural, or cosmetic use. An individual technically qualified to handle potentially hazardous chemicals must supervise the use of this material.
The above information was acquired by diligent search and/or investigation and the recommendations are based on prudent application of professional judgment. The information shall not be taken as being all inclusive and is to be used only as a guide. All materials and mixtures may be present unknown hazards and should be used with caution. Since GeneDireX Corporation cannot control the actual methods, volumes, or conditions of use, the Company shall not be held liable for any damages or losses resulting from the handling or from contact with the product as described herein. The above information is believed to be correct but does not purport to be all-inclusive and shall be used only as a guide. GeneDireX shall not be held liable for any damage resulting from handling or from contact with the above product.