SAFETY DATA SHEET

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SECTION 1: COMPANY AND PRODUCT INFORMATION

1.1 Product identifiers

Product name	:	Rifampicin Solution, 25mg/mL, Sterile
Product code	:	40110082
CAS number	:	13292-46-1
Synonyms	:	3-(4-Methylpiperazinyliminomethyl)rifamycin SV; Rifampin; Rifamycin AMP

1.2 Relevant identified uses of the substance or mixture and uses advised against

Identified uses	:	For research and laboratory use only.

1.3 Details of the supplier of the safety data sheet

Address	:	Genelinx International Inc, dba bioWORLD 4150 Tuller Rd. Suite 228 Dublin, OH 43017
Email	:	tech@bio-world.com
Phone	:	614-792-8680

1.4 Emergency telephone number

CHEMTREC USA	:	1-800-424-9300
CHEMTREC International	:	+1-703-537-3887

SECTION 2: HAZARDS IDENTIFICATION

2.1 Classification of substance or mixture

Flammable liquids (Category 4), H227

2.2 GHS Classification in accordance with 29 CFR 1910 (OSHA HCS)

Flammable liquids (Category 4), H227

2.3 Label elements and precautionary statements

Pictogram :

Signal word : Warning

Hazard statement(s) : H227 - Combustible liquid

Precautionary statement(s)	:	P210 - Keep away from heat/sparks/open flames/hot surfaces. No smoking. P264 - Wash skin thoroughly after handling. P270 - Do not eat, drink or smoke when using this product. P280 - Wear protective gloves/protective clothing/eye protection/face protection. P301+P330+P331 - IF SWALLOWED: Rinse mouth. Do NOT induce vomiting. P370+378 - In case of fire: Use dry sand, dry chemical or alcohol-resistant foam to extinguish. P403+235 - Store in a well-ventilated place. Keep cool. P501 - Dispose of contents/container to an approved waste disposal plant.

2.4 Hazards not otherwise classified (HNOC) or not covered by GHS

No unclassified hazards known.

2.5 NFPA Rating

Health hazard	:	2
Fire hazard	:	0
Reactivity hazard	:	1

2.6 HMIS Rating

Health hazard	:	2
Chronic health hazard	:	*
Reactivity hazard	:	0
Flammability	:	1
Physical hazard	:	1

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

3.1 Substances

Substance	CAS#	EC#	Concentration
Rifampicin M.F: $C_{43}H_{58}N_4O_{12}$ M.W: 822.94 g/mol	13292-46-1	236-312-0	2.5%
Dimethyl sulfoxide M.F: C_2H_6OS M.W: 78.13 g/mol	67-68-5	200-664-3	97.5%

3.2 Hazardous components & classification

Flam. liq. 4, Acute Tox. 4; H227, H302

SECTION 4: FIRST AID MEASURES

4.1 Description of first aid measures

General advice

Consult a physician if symptoms are severe or persistent. Provide this data sheet to medical personnel. If product is spilled or leaked, evacuate area.

In case of inhalation

If inhaled, move person to fresh air and monitor breathing. If not breathing, give artificial ventilation. Consult a physician if symptoms are severe or persistent.

In case of skin contact

Immediately wash with excess soap and water. If spilled on clothing, remove all affected clothing. Consult a physician if symptoms are severe or persistent.

In case of eye contact

Flush eyes with water or eye wash solution as a precaution for 15 minutes. Consult a physician if symptoms are severe or persistent.

In case of ingestion

Only induce vomiting if recommended by medical personnel. If subject is unconscious, do not give anything by mouth. If conscious, rinse mouth with water. Consult a physician if symptoms are severe or persistent.

4.2 Most important symptoms and effects, both acute and delayed

All known important symptoms are described in Section 2 and/or Section 11. No other important symptoms to report.

4.3 Indication of any immediate medical attention and special treatment needed

No special treatment indicated. Provide treatment in accordance with exhibited systems.

SECTION 5: FIREFIGHTING MEASURES

5.1 Suitable extinguishing media

Water spray, alcohol-resistant foam, dry chemical, and carbon dioxide extinguishers are suitable.

5.2 Unsuitable extinguishing media

No known unsuitable extinguishing media.

5.3 Special hazards arising from the substance

Carbon oxides, Nitrogen oxides (NOx) and Sulphur oxides.

5.4 Advice for firefighters

Wear protective gear, such as self-contained breathing apparatus, if necessary.

SECTION 6: ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures

Provide suitable ventilation. Use any necessary personal protective equipment. Avoid contact with skin and eyes, and avoid creation and inhalation of vapor or dust. Keep all unnecessary personnel away.

For personal protection see section 8

6.2 Environmental precautions

Prevent product from entering public sewers and waterways.

6.3 Methods and material for containment and cleaning up

Sweep up any spilled product. Keep in suitable, closed containers for disposal.

For proper disposal see section 13

SECTION 7: HANDLING AND STORAGE

7.1 Precautions for safe handling

Provide suitable ventilation. Wear any necessary personal protective equipment.

For precautions see section 2

7.2 Conditions for safe storage, including any incompatibilities

Storage conditions	:	Store upright, closed container in arid, ventilated environment. Sensitive to light and moisture. Storage Temperature: -20°C. Storage class (TRGS 510): 10: Combustible Liquids.
Incompatible materials	:	Strong oxidizing agents are incompatible with this product.

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 Control parameters

Dimethyl sulphoxide (CAS No. 67-68-5)
TWA: 250 ppm - US WEEL

8.2 Engineering controls

Follow good industrial hygiene and safety practices when handling product.

8.3 Personal protective equipment

Eye/face protection	:	Use only government-approved safety glasses with side-shields.
Skin protection	:	Use gloves when handling product. Inspect gloves before use to ensure suitability for use. Remove without exposing skin to the gloves outer surface. Discard used gloves according to all pertinent laws and/or current good practices (cGXP). Wash hands with soap and water.
Body protection	:	Wear appropriate clothing. Ensure clothing is in good condition, with no holes or tears. When selecting clothing, consider the concentration and amount of substance to be handled.
Respiratory protection	:	Use only approved respirators and components which comply with CDC and NIOSH (US) or CEN (EU) regulations. Required only when vapors or aerosols are created.
Control of environmental exposure	:	Prevent product from entering the environment, especially through public sewers or waterways.
General hygiene considerations	:	Comply with general industrial hygiene practice guidelines.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

a)	Appearance	:	Clear, colorless
b)	Physical states	:	Liquid
c)	Odor	:	Not available
d)	Odor threshold	:	Not available
e)	Melting point	:	Not available
f)	Boiling point range	:	Not available
g)	pH	:	Not available
h)	Density	:	Not available

i)	Flash point	:	Not available
j)	Evaporation rate	:	Not available
k)	Flammability	:	Not available
l)	Upper/lower flammability or explosive limits:	:	Not available
m)	Vapor pressure	:	Not available
n)	Vapor density	:	Not available
o)	Relative density	:	Not available
p)	Water solubility	:	Not available
q)	Partition coefficient:n-octanol/water	:	Not available
r)	Autoignition temperature	:	Not available
s)	Decomposition temperature	:	Not available
t)	Kinematic viscosity	:	Not available
u)	Explosive properties	:	Not available
v)	Oxidizing properties	:	Not available
w)	Solubility in other solvents	:	Not available
x)	Surface tension	:	Not available

SECTION 10: STABILITY AND REACTIVITY

10.1 Reactivity

No special reactivity is known.

10.2 Chemical stability

Product is stable when stored and used as recommended.

10.3 Stability note(s)

Avoid exposing the product to moisture or light.

10.4 Polymerization

No known polymerization.

10.5 Possibility of hazardous reactions

No hazardous reactions are known.

10.6 Incompatible materials

Strong oxidizing agents are incompatible with this product.

10.7 Hazardous decomposition products

Carbon oxides, Nitrogen oxides (NOx) and Sulphur oxides can form if fire occurs.

SECTION 11: TOXICOLOGICAL INFORMATION

11.1 Acute toxicity

LD50 Oral	:	Rifampicin: Rat - 1,570 mg/kg Dimethyl sulfoxide: Rat - male and female - 28,300 mg/kg
LD50 Dermal	:	Dimethyl sulfoxide: Rat - 40000 mg/kg

LC50 Inhalation : Dimethyl sulfoxide: Rat - 4 h - 5.33 mg/L

11.2 Skin corrosion/irritation

Dimethyl sulfoxide: Rabbit - 4 h - slight irritation

11.3 Serious eye damage/eye irritation

Dimethyl sulfoxide: Rabbit - 24 h - slight irritation

11.4 Respiratory or skin sensitization

Dimethyl sulfoxide
Maximisation Test: Guinea pig - negative
Local lymph node assay (LLNA): Mouse - negative

11.5 Germ cell mutagenicity

Dimethyl sulfoxide
Ames test: Salmonella typhimurium - negative
Sister chromatid exchange assay: Chinese hamster ovary cells - negative
Mutagenicity (mammal cell test) chromosome aberration: Chinese hamster ovary cells - negative

11.6 Carcinogenicity

IARC : Product and components are not regulated by the IARC.

ACGIH : Product and components are not regulated by the ACGIH.

NTP : Product and components are not regulated by the NTP.

OSHA : Product and components are not regulated by OSHA.

11.7 Reproductive toxicity

No reproductive toxicity data available.

11.8 Specific target organ toxicity – single exposure

No specific organ toxicity data available.

11.9 Specific target organ toxicity – repeated exposure

No specific organ toxicity data available.

11.10 Aspiration hazard

No aspiration hazard data available.

11.11 Additional Information

RTECS: VJ7000000 (Rifampicin). PV6210000 (Dimethyl sulfoxide).
Exposure to and/or consumption of alcohol may increase toxic effects.
Liver - Irregularities - Based on Human Evidence.
Exposure to large amounts can cause: Redness of skin, Itching, Burning, Sedation, Headache, Nausea, Dizziness
Eyes - Eye disease - Based on Human Evidence

SECTION 12: ECOLOGICAL INFORMATION

12.1 Toxicity

No ecological toxicity data available.

12.2 Aquatic toxicity

Dimethyl sulfoxide:
Species: Fathead Minnow (Pimephales promelas). Exposure: 96 hours. Result: LC50 34000 mg/L
Species: Rainbow Trout (Oncorhynchus mykiss). Exposure: 96 hours. Result: LC50 35000 mg/L.
Species: Water Flea (Daphnia magna). Exposure: 48 hours. Result: EC50 24,600 mg/L (OECD Test Guideline 202)
Species: Green Algae (Pseudokirchneriella subcapitata). Exposure: 72 hours. Result: EC50 17,000 mg/L (OECD Test Guideline 201)
Species: Zebra fish (Danio rerio). Exposure: 96 hours. Result: LC50 >25,000 mg/l (OECD Test Guideline 203)
Species: Activated sludge. Exposure: 30 mins. Result: EC50 10-100 mg/l (ISO 8192)

12.3 Persistence and degradability

Dimethyl sulfoxide: Aerobic - 28 days - 31% - Not readily biodegradable (OECD Test Guideline 301D)

12.4 Bioaccumulative potential

No bioaccumulation data available.

12.5 Mobility in soil

No soil mobility data available.

12.6 Results of PBT and vPvB assessment

PBT/vPvB assessment not available as chemical safety assessment is not required/was not conducted.

12.7 Other adverse effect

Dimethyl sulfoxide: Hydrolyses readily in water (-0.12, 1.2 hours @ 30°C)

SECTION 13: DISPOSAL CONSIDERATIONS

13.1 Product

Chemical waste generators must determine whether a discarded chemical is classified as a hazardous waste. Chemical waste generators must also consult and adhere to local, regional, and national hazardous waste regulations to ensure complete and accurate classification.

13.2 Packaging

Packaging should be disposed of in the same manner as unused product.

13.3 Recommendation

Disposal must be made according to official regulations.

SECTION 14: TRANSPORTATION INFORMATION

14.1 DOT (US)

Not a dangerous good under DOT (US) regulations.

14.2 IMDG

Not a dangerous good under IMDG regulations.

14.3 IATA

Not a dangerous good under IATA regulations.

SECTION 15: REGULATORY INFORMATION

15.1 SARA

SARA 302: This product and components are not subject to the reporting requirements of SARA Title III, Section 302.
SARA 313: This product does not contain any components with known CAS numbers that exceed the threshold reporting levels established by SARA Title III, Section 313.
SARA 311/312: Acute Health Hazard, Chronic Health Hazard (Rifampicin CAS No. 13292-46-1); Fire Hazard, Chronic Health Hazard (Dimethyl sulfoxide CAS No.: 67-68-5)

15.2 Clean water act (CWA)

No chemicals are present in this product that are subject to regulation under the Clean Water Act.

15.3 Right to know components

Massachusetts	:	No chemicals are present which require disclosure under the Massachusetts Right to Know Act.
Pennsylvania	:	No chemicals are present which require disclosure under the Pennsylvania Right to Know Act.
New Jersey	:	No chemicals are present which require disclosure under the New Jersey Right to Know Act.
California proposition 65 components	:	WARNING: This product contains a chemical known to the State of California to cause birth defects or other reproductive harm: Rifampicin CAS No.: 13292-46-1

SECTION 16: OTHER INFORMATION

16.1 Disclaimer

This product is offered by bioWORLD for research, laboratory or further manufacturing use. Not for human use or consumption. The information above is believed to be accurate and represents the best information currently available to us. However, we make no warranty of merchant-ability or any other warranty, express or implied, with respect to such information, and we assume no liability resulting from its use. Users should make their own investigations to determine the suitability of the information for their particular purposes. In no event shall bio-WORLD.com be liable for any claims, losses, or damages of any third party or for lost profits or any special, indirect,incidental,consequential or exemplary damages, howsoever arising, even if bio-WORLD.com has been advised of the possibility of such damages.

16.2 Copyright

16.2 Preparation Information

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