ELIXIRGEN SCIENTIFIC

SAFETY DATA SHEET

SECTION 1: PRODUCT AND COMPANY INFORMATION

Product name: Component A

Contact:

Elixirgen Scientific, Inc.
855 N. Wolfe St., Suite 631
Baltimore, MD 21205
Phone: +1 443-869-5420
https://elixirgensci.com

SECTION 2: HAZARD IDENTIFICATION

GHS classification of the substance or mixture:
GHS Classification in accordance with 29 CFT 1910 (OSHA HCS)

Flammable liquids (Category 4), H227
Acute toxicity, Dermal (Category 4), H312
Acute toxicity, Oral (Category 4), H302
Acute toxicity, Inhalation (Category 4), H332
Acute aquatic toxicity (Category 2), H401

For full text of the H-Statements mentioned in this Section, see Section16.

GHS label elements, including precautionary statements:

Hazard picograms:

Signal word:	Warning
Hazard Statement(s):	
H227	Combustible liquid.
H302 + H312 + H332	Harmful if swallowed, in contact with skin or if inhaled.
H401 Toxic to aquatic life.	
Precautionary statements:	
P210	Keep away from heat/sparks/open flames/hot surfaces. No smoking.
P261	Avoid breathing dust/fume/gas/mist/vapors/spray.
P264	Wash skin thoroughly after handling.
P270	Do not eat, drink or smoke when using this product.
P271	Use only outdoors or in a well-ventilated area.

P273	Avoid release to the environment.
P280	Wear protective gloves/protective clothing/eye protection/face protection.
P301+P312	IF SWALLOWED: Call a POISON CENTER or doctor/physician if you feel unwell.
P302+P352	IF ON SKIN: Wash with plenty of soap and water.
P304+P340	IF INHALED: Remove patient to fresh air and keep at rest in a position comfortable for breathing.
P322	Specific measures (see supplemental first aid instructions on this label.)
P330	Rinse mouth.
P363	Wash contaminated clothing before reuse.
P370+P378	In case of fire: Use dry sand, dry chemical or alcohol-resistant foam for extinction.
P403+P235	Store in a well-ventilated place. Keep cool.
P501	Dispose of contents/container to an approved waste disposal plant.

Other hazards which do not result in the classification or are not covered by the GHS:

None.

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS SUBSTANCE

Substance/Mixture: Mixture

Hazardous Ingredients

Chemical Name	CAS-No.	GHS-US Hazardous Calssification	Concentration (%)
Dimethyl sulfoxide	67-68-5	Flam. Liq. 4; H227	<=100
Colforsin	66575-29-9	Acute Tox. 4; H312	<0.1
Dorsomorphin	866405-64-3	Acute Tox. 4; H302+H312+H332	<0.1
Tretinoin	302-79-4	Acute Tox. 4; Aquatic Acute 2; H302, H401	0.2

For the full text of the H-statements mentioned in this Section, see Section 16.

SECTION 4: FIRST AID MEASURES

Description of first aid measure

General advice: Consult a physician. Show this safety data sheet to the doctor in attendance. Move out of dangerous area.

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

Skin contact:	Wash off with soap and plenty of water. Consult a physician.
Eye contact:	Flush eyes with water as a precaution.
Ingestion:	Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

Most important symptoms/effects, acute and delayed.

The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11.

Indication of immediate medical attention and special treatment needed.

No data available.

SECTION 5: FIRE-FIGHTING MEASURES

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.

Specific hazards arising from the substance or mixture:

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

Advice for fire-fighters:

Wear self-contained breathing apparatus for firefighting if necessary.

Further information:

Use water spray to cool unopened containers.

SECTION 6: ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures:

Avoid dust formation. Avoid breathing vapors, mist, gas, or dust. Remove all sources of ignition. Beware of vapors accumulating to form explosive concentrations. Vapors can accumulate in low areas. For personal protection use safety glasses, lab coat, and gloves. Remove all sources of ignition. Remove persons to safety.

Environmental precautions:

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

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.

Reference to other section:

For disposal see section 13.

SECTION 7: HANDLING AND STORAGE

Precautions for safe handling:

Avoid contact with skin and eyes, inhalation of vapors, and mists. Avoid formation of dust and aerosols. Provide appropriate exhaust ventilation at places where dust is formed. Keep away from sources of ignition – No smoking. Take measures to prevent the build up of electrostatic charge. For precautions see section 2.2.

Conditions for safe storage, including any incompatibilities:

Keep container tightly closed in a dry and well-ventilated place.
Store under inert gas. Hygroscopic. Light sensitive.

Specific end use(s):

Apart from the uses mentioned in section 1.2, no other specific uses are stipulated.

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

Control parameters:

Ingredient	CAS No.	Value type (Form of exposure)	Control parameters/Permissible concentration	Basis
Dimethyl sulfoxide	67-68-5	TWA	250.000000 ppm	USA. Workplace Environmental Exposure Levels (WEEL)

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:

Eyes:	Safety goggles or splash guard safety glasses.
Body:	Lab coat and gloves.
Skin:	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.

Respiratory:	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).

Control of environmental exposure:

Prevent further leakage or spillage if safe to do so. Do not let product enter drains.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

Appearance:	Aqueous solution.
Odor:	No data available.
Odor threshold:	No data available.
pH:	No data available.
Melting point/freezing point:	No data available.
Initial boiling point and boiling range:	No data available.
Flash point:	No data available.
Evaporation rate:	No data available.
Flammability (solid, gas):	No data available.
Upper/lower flammability or explosive limits:	No data available.
Vapor pressure:	No data available.
Vapor density:	No data available.
Relative density:	No data available.
Solubility(ies):	No data available.
Partition coefficient: n-octanol/water:	No data available.
Auto-ignition temperature:	No data available.
Decomposition temperature:	No data available.
Viscosity:	No data available.
Explosive properties:	No data available.
Oxidizing properties:	No data available.

SECTION 10: STABILITY AND REACTIVITY

Reactivity:	No data available.
Chemical stability:	Stable under recommended storage conditions.
Possibility of hazardous reactions:	No data available.
Conditions to avoid:	Heat, light, flames and sparks.
Incompatible materials:	Acid chlorides, Phosphorus halides, Strong acids, Strong bases, Oxidizing agents, Strong reducing agents.
Hazardous decomposition products:	Other decomposition products - No data available. In the event of fire: see section 5

SECTION 11: TOXICOLOGICAL INFORMATION

Acute toxicity:

Chemical Name	LD50 (oral, rat/mouse)	LD50 (dermal, rat/rabbit)	LC50 (inhalation, rat/mouse)
Dimethyl sulfoxide	= 14,500 mg/kg (Rat)	>5,000 mg/kg (Rabbit)	40250 ppm 4h (Rat)
Colforsin	= 2,550 mg/kg (Rat)	no data available	no data available
Tretinoin	= 2,000 mg/kg (Rat)	2,500 mg/kg (Rabbit)	no data available

Skin corrosion/irritation: No data available.
Serious eye damage/eye irritation:
Tretinoin
Eyes - rabbit
Result: No eye irritation
Respiratory or skin sensitization: No data available.
Mutagenicity:
Tretinoin
Negative
Carcinogenicity:
Dimethyl sulfoxide
Rat – Oral
Tumorigenic: Equivocal tumorigenic agent by RTECS criteria. Skin and Appendages: Other: Tumors.

Mouse – Oral
Tumorigenic: Equivocal tumorigenic agent by RTECS criteria. Leukemia 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.
ACGIH: 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 ACGIH.
NTP: 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 NTP.
OSHA: 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 OSHA.

Reproductive toxicity:
Dimethyl sulfoxide
Rat – Intraperitoneal
Effects on Fertility: Abortion.

Rat – Intraperitoneal
Effects on Fertility: Post-implantation mortality (e.g., dead and/or resorbed implants per total number of implants).

Rat – Subcutaneous
Effects on Fertility: Post-implantation mortality (e.g., dead and/or resorbed implants per total number of implants). Litter size (e.g., #fetuses per litter; measured before birth).

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.

Specific target organ toxicity:
No data available.

Aspiration hazard:
No data available.

Additional Information:
Dimethyl sulfoxide
RTECS: PV6210000
Effects due to ingestion may include: Nausea, Fatigue, Headache

Tretinoin
RTECS: VH6475000

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

SECTION 12: ECOLOGICAL INFORMATION

Toxicity:

Dimethyl sulfoxide
Toxicity to fish:
LC50 – Pimephales promelas (fathead minnow) – 34,000 mg/l – 96h
LC50 – Oncorhynchus mykiss (rainbow trout) – 35,000 mg/l – 96h
Toxicity to daphnia and other aquatic invertebrates:
EC50 – Daphnia magna (Water flea) – 24,600 mg/l – 48h

(OECD Test Guideline 202)
Toxicity to algae: Duration 48h – mg/l: 9268

Tretinoin
LC50 - Danio rerio (zebra fish) - 4.64 mg/l - 96 h

Persistence and degradability:

Dimethyl sulfoxide
Result: 31% - According to the results of tests of biodegradability this product is not readily biodegradable.
(OECD Test Guideline 301D)

Tretinoin
Result: > 60 % - Readily biodegradable.

Bioaccumulative potential:

Tretinoin
Does not bioaccumulate.

Mobility in soil:

No data available.

Results of PBT and vPvB assessment:

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

Other adverse effects:

An environmental hazard cannot be excluded in the event of unprofessional handling or disposal. Toxic to aquatic life.

no data available

SECTION 13: DISPOSAL INFORMATION

Waste treatment methods:

Product

Offer surplus and non-recyclable solutions to a licensed disposal company. Contact a licensed professional waste disposal service to dispose of this material. Dissolve or mix the material with a combustible solvent and burn in a chemical incinerator equipped with an afterburner and scrubber.

Contaminated packaging

Dispose of as unused product.

SECTION 14: TRANSPORT INFORMATION

DOT (US)
NA-Number: 1993
Class: None
Packaging group: III
Proper shipping name: Combustible liquid, n.o.s. (Dimethyl sulfoxide)

IMDG
UN number: 3077 Class: 9 Packing group: III EMS-No: F-A, S-F
Proper shipping name: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S . (Tretinoin)
Marine pollutant: Marine pollutant

IATA
UN number: 3077 Class: 9 Packing group: III
Proper shipping name: Environmentally hazardous substance, solid, n.o.s. (Tretinoin)

Further information
EHS-Mark required (ADR 2.2.9.1.10, IMDG code 2.10.3) for single packagings and combination packagings containing inner packagings with Dangerous Goods > 5L for liquids or > 5kg for solids.

SECTION 15: REGULATORY INFORMATION

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

SARA 313 Components
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
Fire Hazard, Acute Health Hazard, Chronic Health Hazard.
US State regulations:

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

Pennsylvania Right To Know Components

	CAS-No
4-(5-Benzol[1,3]dioxol-5-yl-4-pyridin-2-yl-1H-imidazol-2-yl)-benzamide hydrate	-

6-[4-(2-Piperidin-1-ylethoxy)phenyl]-3-pyridin-4-ylpyrazolo[1,5-a]pyrimidine	866405-64-3
Colforsin	66575-29-9
Dimethyl sulfoxide	67-68-5
Tretinoin	302-79-4

New Jersey Right To Know Components

	CAS-No
4-(5-Benzol[1,3]dioxol-5-yl-4-pyridin-2-yl-1H-imidazol-2-yl)-benzamide hydrate -	
6-[4-(2-Piperidin-1-ylethoxy)phenyl]-3-pyridin-4-ylpyrazolo[1,5-a]pyrimidine	866405-64-3
Colforsin	66575-29-9
Dimethyl sulfoxide	67-68-5
Tretinoin	302-79-4

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.

SECTION 16: OTHER INFORMATION

Full text of H-Statements referred to under sections 2 and 3

6-[4-(2-Piperidin-1-ylethoxy)phenyl]-3-pyridin-4-ylpyrazolo[1,5-a]pyrimidine

Acute Tox.	Acute toxicity
H302	Harmful if swallowed.
H302+H312+H332	Harmful if swallowed, in contact with skin or if inhaled.
H312	Harmful in contact with skin.

Colforsin

Acute Tox.	Acute toxicity
H312	Harmful in contact with skin.

Dimethyl sulfoxide

Flam. Liq.	Flammable liquids.
H227	Combustible liquid.

Tretinoin

Acute Tox.	Acute toxicity
Aquatic Acute	Acute aquatic toxicity
H302	Harmful if swallowed.
H401	Toxic to aquatic life.

HMIS Rating

4-(5-Benzol[1,3]dioxol-5-yl-4-pyridin-2-yl-1H-imidazol-2-yl)-benzamide hydrate
Health hazard: 0
Chronic Health Hazard:
Flammability: 0
Physical Hazard: 0

6-[4-(2-Piperidin-1-ylethoxy)phenyl]-3-pyridin-4-ylpyrazolo[1,5-a]pyrimidine
Health hazard: 2
Chronic Health Hazard:
Flammability: 0
Physical Hazard: 0

Colforsin
Health hazard: 1
Chronic Health Hazard:
Flammability: 0
Physical Hazard: 0

Dimethyl sulfoxide
Health hazard: 0
Chronic Health Hazard:
Flammability: 2
Physical Hazard: 0

Tretinoin
Health hazard: 1
Chronic Health Hazard:
Flammability: 0
Physical Hazard 0

NFPA Rating
4-(5-Benzol[1,3]dioxol-5-yl-4-pyridin-2-yl-1H-imidazol-2-yl)-benzamide hydrate
Health hazard: 0
Fire Hazard: 0
Reactivity Hazard: 0

6-[4-(2-Piperidin-1-ylethoxy)phenyl]-3-pyridin-4-ylpyrazolo[1,5-a]pyrimidine
Health hazard: 2
Fire Hazard: 0
Reactivity Hazard: 0

Colforsin

Health hazard:	1
Fire Hazard:	0
Reactivity Hazard:	0

Dimethyl sulfoxide

Health hazard:	0
Fire Hazard:	2
Reactivity Hazard:	0

Tretinoin

Health hazard:	0
Fire Hazard:	0
Reactivity Hazard:	0

Other comments:
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