

SAFETY DATA SHEET

SECTION 1. IDENTIFICATION

1.1 Product identifiers

Product name	: Endoxifen 20 mg/mL Solution (30 mL)
Product Number	: ENDOX-30ML
Brand	: 4AminoLabs
CAS-No. (active)	: 112093-28-4 ((Z)-endoxifen)
Reference batch	: ENDX-2026-001 (see container label)

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

Identified uses	: Laboratory research and analytical reference use.
Uses advised against	: Not for human or veterinary use. Not a drug, dietary supplement, food, or cosmetic. Supplied under the TSCA R&D Exemption (40 CFR Section 720.36); it is the recipient's responsibility to comply with the requirements of the R&D exemption.

1.3 Details of the supplier of the safety data sheet

Company	: 4AminoLabs 1001 S. Main Street, STE 600 Kalispell, MT 59901 UNITED STATES
Telephone	: +1 (256) 472-1983
E-mail	: sales@4aminolabs.com
Website	: www.4aminolabs.com

1.4 Emergency telephone number

Emergency Phone #	: Poison Control Center (US): 1-800-222-1222 (24 hours/day, 7 days/week)
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SECTION 2. HAZARDS IDENTIFICATION

GHS classification in accordance with the OSHA Hazard Communication Standard (29 CFR 1910.1200)

Flammable liquids	: Category 3
Carcinogenicity	: Category 1A
Reproductive toxicity	: Category 1B
Long-term (chronic) aquatic hazard	: Category 3

Classification is based on the actual concentrations of the ingredients in the finished product (GHS mixture rules; endoxifen approx. 1.8 % w/w). The flammable-liquid classification is applied conservatively on the basis of the ethanol content; the flash point of the mixture has not been measured. Substance classification of (Z)-endoxifen: Carc. 1A, Repr. 1B, Aquatic Acute 1, Aquatic Chronic 1.

GHS label elements

Hazard pictograms	:  
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Signal word	: Danger
Hazard statements	: H226 Flammable liquid and vapour. H350 May cause cancer. H360 May damage fertility or the unborn child. H412 Harmful to aquatic life with long lasting effects.

Precautionary statements : Prevention:
P203 Obtain, read and follow all safety instructions before use.
P210 Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
P233 Keep container tightly closed.
P273 Avoid release to the environment.
P280 Wear protective gloves/ protective clothing/ eye protection/ face protection.
Response:
P303 + P361 + P353 IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water.
P318 IF exposed or concerned, get medical advice.
P370 + P378 In case of fire: Use dry sand, dry chemical or alcohol-resistant foam to extinguish.
Storage:
P403 + P235 Store in a well-ventilated place. Keep cool.
P405 Store locked up.
Disposal:
P501 Dispose of contents/ container to an approved waste disposal plant.

Other hazards

Limited test data available for hazard assessment; handle with caution. Vapours of the ethanol component may form flammable mixtures with air on heating. Persons who are pregnant, breast-feeding, or may become pregnant should not handle this product. Hormonally active substance (selective estrogen receptor modulator); the solvent carrier may increase skin penetration of the active ingredient.

SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

Substance / Mixture : Mixture (solution)

Components

Chemical name	CAS-No.	Concentration
Endoxifen ((Z)-4-hydroxy-N-desmethyltamoxifen) Synonyms: Z-endoxifen; N-desmethyl-4-hydroxytamoxifen; 4-hydroxy-N-desmethyltamoxifen Formula: C ₂₅ H ₂₇ NO ₂ Molecular weight: 373.49 g/mol	112093-28-4	20 mg/mL (600 mg per 30 mL; approx. 1.8 % w/w)
Polyethylene glycol 400 (PEG-400)	25322-68-3	Balance (approx. 90 % v/v of carrier)
Ethanol Carrier: PEG-400 / ethanol, 90:10 v/v.	64-17-5	10 % v/v of carrier

SECTION 4. FIRST AID MEASURES

General advice : Show this safety data sheet to the doctor in attendance.
If inhaled : After inhalation: fresh air. Call in physician if symptoms develop.
In case of skin contact : Take off immediately all contaminated clothing. Rinse skin with water/ shower for at least 15 minutes. Consult a physician.
In case of eye contact : After eye contact: rinse out with plenty of water for at least 15 minutes. Remove contact lenses.
If swallowed : After swallowing: rinse mouth, make victim drink water (two glasses at most). Do not induce vomiting. Consult a physician.
Most important symptoms and effects, both acute and delayed : Eye irritation from the ethanol component. Hormonal effects possible with significant exposure, including hot flushes, effects on the endometrium, thromboembolic effects, and effects on fertility. See also section 11.
Protection of first-aiders : For personal protection see section 8.
Notes to physician : Treat symptomatically. Endoxifen is a selective estrogen receptor modulator (SERM) and the principal active metabolite of tamoxifen.

SECTION 5. FIREFIGHTING MEASURES

Suitable extinguishing media : Water spray, alcohol-resistant foam, dry chemical, dry sand, carbon dioxide (CO₂).
Unsuitable extinguishing media : Full water jet.
Specific hazards during firefighting : Flammable. Vapours may form explosive mixtures with air on intense heating. Containers may burst if heated.

Hazardous combustion products	: Carbon oxides Nitrogen oxides (NOx)
Further information	: Cool closed containers with water spray. Prevent fire extinguishing water from contaminating surface water or the ground water system.
Special protective equipment for firefighters	: In the event of fire, wear self-contained breathing apparatus.

SECTION 6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures	: Remove all sources of ignition. Avoid substance contact. Ensure adequate ventilation. Evacuate the danger area, observe emergency procedures, consult an expert. Advice for emergency responders: For personal protection see section 8.
Environmental precautions	: Do not let product enter drains. Prevent release to the environment.
Methods and materials for containment and cleaning up	: Absorb with liquid-absorbent, non-combustible material (e.g. vermiculite, sand). Place in a closed, labeled container. Decontaminate surfaces with alcohol followed by soap and water. Dispose of properly (see section 13).

SECTION 7. HANDLING AND STORAGE

Advice on safe handling	: For precautions see section 2. Obtain special instructions before use. Handle only by qualified personnel in a laboratory setting. Work under a fume hood. Avoid contact with skin and eyes. Keep away from sources of ignition; take precautionary measures against static discharge.
Hygiene measures	: Change contaminated clothing. Wash hands after working with substance. Do not eat, drink, or smoke in work areas.
Further information on storage conditions	: Tightly closed. Protect from light (light sensitive). Keep away from heat and sources of ignition. Store locked up or in an area accessible only to qualified or authorized persons. Do not refrigerate or freeze; cold storage may cause the PEG-400 solution to cloud or precipitate. If this occurs, return to room temperature and mix until clear.
Storage class	: 3, Flammable liquids
Recommended storage temperature	: 20 - 25 °C (68 - 77 °F)
Materials to avoid	: Strong oxidizing agents, strong acids and bases.

SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Ingredients with workplace control parameters

Component	CAS-No.	Value type	Control parameter	Basis
Endoxifen	112093-28-4	-	No established limit	-
Ethanol	64-17-5	TWA STEL	1,000 ppm (1,900 mg/m ³) 1,000 ppm	OSHA Z-1 ACGIH
Polyethylene glycol 400	25322-68-3	TWA (aerosol)	10 mg/m ³	AIHA WEEL

Engineering measures	: Use a fume hood. Provide an eyewash station and safety shower. Use explosion-proof ventilation where vapour concentrations may be significant.
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Personal protective equipment

Respiratory protection	: Not normally required with adequate ventilation. Where aerosols or vapours are generated, use a NIOSH-approved respirator with organic vapour cartridges and P100 pre-filters.
Hand protection	: Material: Nitrile rubber Glove thickness: minimum 0.11 mm Protective index: full contact and splash contact Remarks: Handle with impervious gloves; double-gloving recommended. Inspect before use and dispose of after contamination.
Eye protection	: Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166 (EU). Safety goggles.
Skin and body protection	: Flame-retardant laboratory coat. Impervious clothing as needed for the task.
Hygiene measures	: Change contaminated clothing. Wash hands after working with substance.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES



Appearance	: Liquid, clear solution
Color	: Colorless to pale yellow
Odor	: Faint, alcoholic
Odor Threshold	: No data available
pH	: No data available
Melting point/freezing point	: No data available
Boiling point/boiling range	: No data available
Flash point	: Not determined for the mixture. Classified conservatively as a Category 3 flammable liquid on the basis of 10 % v/v ethanol in the carrier.
Evaporation rate	: No data available
Flammability (solid, gas)	: Not applicable
Upper/lower explosion limit	: No data available
Vapor pressure	: No data available
Relative vapour density	: No data available
Relative density	: approx. 1.09
Water solubility	: Solvent carrier is miscible with water; endoxifen practically insoluble in water (< 0.1 mg/mL)
Partition coefficient: n-octanol/water	: No data available
Autoignition temperature	: No data available
Decomposition temperature	: No data available
Viscosity	: Viscous liquid; no data available
Explosive properties	: Not explosive
Oxidizing properties	: None
Molecular weight	: 373.49 g/mol (endoxifen)
Nominal concentration	: 20 mg/mL (600 mg per 30 mL)

SECTION 10. STABILITY AND REACTIVITY

Reactivity	: Vapour/air mixtures are explosive at intense warming.
Chemical stability	: The product is chemically stable under recommended storage conditions. Light and heat may promote Z/E isomerization of endoxifen.
Possibility of hazardous reactions	: Risk of ignition with strong oxidizing agents.
Conditions to avoid	: Heat, flames and sparks, direct light, cold storage (clouding).
Incompatible materials	: Strong oxidizing agents, strong acids, strong bases, alkali metals.
Hazardous decomposition products	: In the event of fire: see section 5

SECTION 11. TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects

Acute toxicity

No data available for the mixture. No validated LD50 data for endoxifen. Ethanol: LD50 oral (rat) 10,470 mg/kg. PEG-400: LD50 oral (rat) > 28,000 mg/kg.

Skin corrosion/irritation

No data available. Repeated contact with the carrier may cause skin dryness.

Serious eye damage/eye irritation

Ethanol component may cause eye irritation.

Respiratory or skin sensitization

No data available

Germ cell mutagenicity

No data available

Carcinogenicity

May cause cancer (Carc. 1A, based on supplier classification of (Z)-endoxifen). Endoxifen is the principal active metabolite of tamoxifen; IARC classifies tamoxifen as Group 1 (carcinogenic to humans), associated with endometrial cancer.



IARC: Endoxifen is not individually evaluated by IARC. Ethanol is classified by IARC only in the context of alcoholic beverage consumption.

NTP: Tamoxifen is listed by NTP as a known human carcinogen; endoxifen is not individually listed.

OSHA: No component of this product present at levels greater than or equal to 0.1% is on OSHA's list of regulated carcinogens.

Reproductive toxicity

May damage fertility or the unborn child. Endoxifen acts on estrogen receptors (ER-alpha and ER-beta) and the hypothalamic-pituitary-gonadal axis.

Specific target organ toxicity - single exposure

No data available

Specific target organ toxicity - repeated exposure

No data available

Aspiration hazard

No data available

11.2 Additional Information

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

SECTION 12. ECOLOGICAL INFORMATION

Ecotoxicity

Substance ((Z)-endoxifen) is classified Aquatic Acute 1 and Aquatic Chronic 1. At the concentration in this solution, the mixture is classified as harmful to aquatic life with long lasting effects.

Persistence and degradability

Ethanol and PEG-400: readily biodegradable. Endoxifen: no data available.

Bioaccumulative potential

No data available

Mobility in soil

No data available

Other adverse effects

Hormonally active substance; avoid release to the environment. This product neither contains, nor was manufactured with, a Class I or Class II ODS as defined by the U.S. Clean Air Act Section 602 (40 CFR 82, Subpt. A, App. A + B).

SECTION 13. DISPOSAL CONSIDERATIONS

Disposal methods

Waste from residues : Waste material must be disposed of in accordance with national, state, and local regulations using a licensed waste disposal contractor. Leave chemicals in original containers. No mixing with other waste. Do not pour down the drain or dispose of in household trash. Ignitable waste (D001) may apply.

Contaminated packaging : Handle uncleaned containers like the product itself.

SECTION 14. TRANSPORT INFORMATION

International Regulations

IATA-DGR

UN-Number: UN1993 Class: 3 Packing group: III

Proper shipping name: Flammable liquid, n.o.s. (Ethanol)

Inner packagings of 30 mL may be shipped as Limited Quantity (Y344) where permitted.

IMDG-Code

UN-Number: UN1993 Class: 3 Packing group: III EMS-No: F-E, S-E

Proper shipping name: FLAMMABLE LIQUID, N.O.S. (Ethanol)

Marine pollutant: No

National Regulations

49 CFR (DOT)

UN-Number: UN1993 Class: 3 Packing group: III

Proper shipping name: Flammable liquid, n.o.s. (Ethanol)

Inner packagings of 1 L or less may be shipped as Limited Quantity (49 CFR 173.150(b)). If the flash point is determined to be 38 °C (100 °F) or higher, the product may be reclassified as a combustible liquid for domestic ground transport (49 CFR 173.120(b)(2)); if 60 °C (140 °F) or higher and not bulk, it is not regulated.

Poison Inhalation Hazard : No

Special precautions for user : Keep away from heat and ignition sources during transport.

SECTION 15. REGULATORY INFORMATION

CERCLA Reportable Quantity

This material does not contain any components with a CERCLA RQ.

SARA 302 / 304 Extremely Hazardous Substances

This material does not contain any components with a section 302 EHS TPQ or section 304 EHS RQ.

SARA 311/312 Hazards : Flammable (gases, aerosols, liquids, or solids), Carcinogenicity, Reproductive toxicity

SARA 313 : 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.

Clean Air Act

This product does not contain any hazardous air pollutants (HAP) as defined by the U.S. Clean Air Act Section 112 (40 CFR 61), nor any Class I or Class II ODS.

Clean Water Act

This product does not contain any Hazardous Substances listed under Section 311, Table 116.4A, or toxic or priority pollutants under Section 307.

US State Regulations

Massachusetts Right To Know : Ethanol (64-17-5)

Pennsylvania Right To Know : Ethanol (64-17-5)

New Jersey Right To Know : Ethanol (64-17-5)

California Prop. 65 : Endoxifen is not individually listed under Proposition 65. Its parent compound, tamoxifen and its salts, is listed as known to the State of California to cause cancer. Ethanol is listed only in the context of alcoholic beverages. For more information go to www.P65Warnings.ca.gov.

Inventories

TSCA : Product contains substance(s) not listed on the TSCA inventory. Supplied for research and development use only under 40 CFR 720.36.

SECTION 16. OTHER INFORMATION

Full text of other abbreviations

ACGIH - American Conference of Governmental Industrial Hygienists; AIHA WEEL - Workplace Environmental Exposure Level; CAS - Chemical Abstracts Service; CERCLA - Comprehensive Environmental Response, Compensation, and Liability Act; DOT - Department of Transportation; GHS - Globally Harmonized System; IARC - International Agency for Research on Cancer; IATA-DGR - International Air Transport Association Dangerous Goods Regulations; IMDG - International Maritime Dangerous Goods; LD50 - Lethal Dose to 50% of a test population; NIOSH - National Institute for Occupational Safety and Health; NTP - National Toxicology Program; ODS - Ozone Depleting Substance; OSHA - Occupational Safety and Health Administration; PEG - Polyethylene Glycol; SARA - Superfund Amendments and Reauthorization Act; SDS - Safety Data Sheet; SERM - Selective Estrogen Receptor Modulator; STEL - Short-Term Exposure Limit; TSCA - Toxic Substances Control Act; TWA - Time Weighted Average.

For research use only. Not for human or veterinary use. The information is believed to be correct but is not exhaustive and shall be used solely as a guideline, based on current knowledge of the chemical substance or mixture, and is applicable to appropriate safety precautions for the product. It does not represent any guarantee of the properties of the product. 4AminoLabs shall not be held liable for any damage resulting from handling or from contact with the above product. The burden of safe use rests with the user.

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