



Catalog # Aliquot Size

P312-905-10 10 mg

P312-905-50 50 mg

Nitazoxanide

Anti-infective Agent

Catalog # P312-905

Lot # N3449-2

CAS# 55981-09-4

Product Description

Molecular Formula: C₁₂H₉N₃O₅S

Appearance: Off-white powder

Molecular Weight: 307.3

Purity: >98% (HPLC); NMR (conforms)

Solubility: May be dissolved in DMSO (50 mg/ml)

Alternative name(s)

O-[N-(5-Nitrothiazol-2-yl)carbamoyl]phenyl acetate; NTZ

Storage and Stability

Store desiccated as supplied -20°C for up to 2 years. Store solutions at -20°C for up to 3 months.

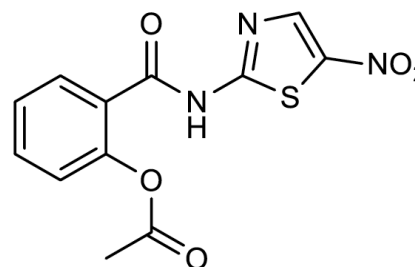
Scientific Background

Nitazoxanide is a clinically useful antiparasitic agent (1). It has since been repurposed as a broad-spectrum antiviral agent that is active against many RNA and DNA viruses including influenza, hepatitis B and C, RSV, coronavirus, dengue, and others (2). Its antiparasitic activity is believed to be due to inhibition of pyruvate:ferredoxin/flavodoxin oxidoreductases (3). Antiviral activity involves activation of protein kinase activated by double-stranded RNA (PKR) leading to phosphorylation of eukaryotic initiation factor 2 alpha (eIF2α) (4). Nitazoxanide has also been found to inhibit Wnt signaling independent of adenomatous polyposis coli (APC), targeting peptidyl arginine deiminase 2 (PAD2) resulting in increased citrullination of β-catenin (5).

References

1. CA White Expert Rev. Anti. Infect. Ther. 2004 2:43
2. J-F Rossignol Antiviral Res. 2014 110:94
3. PS Hoffman et al. Antimicrob. Agents Chemother. 2007 51:868
4. M Elazar et al. Gastroenterology 2009 137:1827
5. Y Qu et al. Nat. Chem. Biol. 2018 14:94

Molecular Structure



Nitazoxanide

Anti-infective Agent

Catalog # P312-905

CAS # 55981-09-4

Lot # N3449-2

Purity >98% (HPLC); NMR (conforms)

Format Off-white powder

Solubility May be dissolved in DMSO (50 mg/ml)

Storage & Shipping Store desiccated as supplied -20°C for up to 2 years. Store solutions at -20°C for up to 3 months. Shipped at ambient temperature.

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SAFETY DATA SHEET

Article 1 – Identification of the Substance

Product Name: Nitazoxanide
Catalog # P312-905

This product is sold only for research use by qualified laboratory personnel, and is not to be used as a drug, medical device, food additive, cosmetic, nor household chemical. It is not to be used in diagnostic, therapeutic, consumer, agricultural, nor pesticidal applications.

Manufacturer's Name: SignalChem Biotech Inc.
 Street Address: 110-13120 Vanier Place
 City, Prov. Postal Code: Richmond, BC, V6V 2J2
 Fax: 604-232-4601
 EMERGENCY PHONE: 604-232-4600

Article 2 - Hazardous Identification

2.1 Classification of Substance (GHS)

Acute Toxicity: Oral, Category 4
 Skin Irritation, Category 2
 Eye Irritation, Category 2A
 Specific target organ toxicity – (single exposure) Category 3

2.2 Label Elements

Classification according to Regulation (EC) No 1272/2008



GHS Signal Word: WARNING

GHS Hazard Phrases:

H302	Harmful if swallowed
H315	Causes skin irritation.
H319	Causes serious eye irritation.
H335	May cause respiratory irritation.
H402	Harmful to aquatic life.

GHS Precaution Phrases:

P261	Avoid breathing dust/fume/gas/mist/vapors/spray.
P264	Wash hands thoroughly after handling.
P270	Do not heat, 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 / eye protection / face protection.

GHS Response Phrases:

P301+312+330	IF SWALLOWED: Call a POISON CENTRE or doctor/physician if you feel unwell. Rinse Mouth
P302+352	IF ON SKIN: Wash with plenty of soap and water.
P321	Specific treatment (See on this label)
P304+340	IF INHALED: Remove person to fresh air and keep comfortable for breathing.
P305+351+338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P332+313	If skin irritation occurs: get medical advice/attention.
P362+364	Take off contaminated clothing and wash it before reuse.
P337+313	If skin irritation occurs: get medical advice/attention.
P403+233	Store in a well-ventilated place. Keep container tightly closed.
P405	Store locked up
P501	Dispose contents/container in accordance with local/regional/national/international regulations.

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GHS Storage and Disposal Phrases:

Please refer to Section 7 for Storage and Section 13 for Disposal Information

2.3 Other hazards: To the best of our knowledge, the toxicological properties have not been thoroughly investigated.

Article 3 – Composition/Information on Ingredients

3.1 Substance

Product Name(s): Nitazoxanide
Chemical Name: O-[N-(5-Nitrothiazol-2-yl)carbamoyl]phenyl acetate
Molecular Formula: C₁₂H₉N₃O₅S
CAS Number: 55981-09-4
Concentration: 100%

Article 4 – First Aid

4.1 Description of First Aid Measures

General: Symptoms of poisoning may even occur after several hours; therefore, medical observation for at least 48 hours after the accident.

After inhalation: In case of unconsciousness, place patient stably in side position for transportation.

After Skin Contact: Immediately wash with water and soap and rinse thoroughly.

After Eye Contact: Rinse opened eye for several minutes under running water. If symptoms persist, consult a doctor.

After Swallowing: Immediately call a doctor.

4.2 Important Symptoms and Effects: May cause anemia, cough, CNS depression, drowsiness, headache, heart damage, lassitude (weakness, exhaustion), liver damage, narcosis, reproductive effects, teratogenic effects.

Article 5 – Fire Fighting Measures

5.1 Extinguishing Media

Use fire-fighting measures that suit the environment. A solid water stream may be inefficient.

5.2 Special Hazards

No further relevant information available.

5.3 Precautions for Fire Fighters

No special measures required.

Article 6 – Accidental Release Measures

6.1 Personal Precautions

Not required.

6.2 Environmental Precautions

Do not allow to enter sewers/surface or ground water.

6.3 Methods for Containment and Clean-up

Ensure adequate ventilation.

Article 7 – Handling and Storage

7.1 Handling Precautions

No special precautions are necessary if used correctly. Avoid breathing dust/fume/gas/mist/vapors/spray. Avoid prolonged or repeated exposure. Keep away from sources of ignition. Take precautionary measures against static discharge.

7.2 Safe Storage Measures

Keep receptacle tightly sealed.

Article 8 – Exposure Controls/Personal Protection

8.1 Control Parameters

Contains no substances with occupational exposure limit values.

8.2 Specific Engineering Controls

Keep airborne levels low by using a fumehood or local exhaust.

8.3 Personal Protection

Eye/Face Protection: Use safety glasses.

Skin Protection: Use chemical resistant gloves. Remove and dispose of gloves properly after use. Wash hands thoroughly after use.

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Body Protection: Wear a lab coat.

Respiratory Protection: If risk is present wear a dust respirator.

Article 9 – Physical and Chemical Properties

Appearance: Off-white powder

Odour: data not available

Odour Threshold: data not available

pH: data not available

Melting/Freezing Pt: data not available

Boiling Pt: data not available

Flash Pt: data not available

Explosive Properties: data not available

Solubility notes: May be dissolved in DMSO (50 mg/ml)

Article 10 – Stability and Reactivity

10.1 Stability: Stable under recommended transport or storage conditions

10.2 Conditions to Avoid: Moist and hot conditions

10.3 Incompatibility – Materials to Avoid: Strong oxidizing agents

10.4 Hazardous Decomposition Products: Carbon dioxide, carbon monoxide, nitrogen oxides, sulfur oxides

Article 11– Toxicological Information

11.1 Toxicological Effects: The toxicological effects of this product have not been thoroughly studied.

Acute Toxicity: Oral LD50 (mouse): 1,350 mg/kg; Oral LD50 (rat): >10,000 mg/kg.

Chronic Toxicity: Investigated as a drug.

For complete information, see Registry of Toxic Effects of Chemical Substances (RTECS) entry. Nitazoxanide RTECS Number: VN7830000

Skin Corrosion/Irritation: Irritant to skin and mucus membranes.

Eye Damage/Irritation: Irritating effect.

Respiratory or Skin Sensitization: No sensitizing effects known.

Germ Cell Mutagenicity: data not available

Carcinogenicity: None according to NIOSH

Article 12 – Ecological Information

12.1 Toxicity

Water hazard class 1 (self-assessment): slightly hazardous for water. Do not allow undiluted product or large quantities of it to reach ground water, water course or sewage system.

12.2 Degradability

Data not available

Article 13 – Disposal Considerations

13.1 Waste Treatment

Product and Contaminated Packaging: Dispose according to national legislation. Contact a licensed chemical disposal company.

Article 14 – Transport Information

14.1 DOT

Not dangerous goods

14.2 IMDG

Not dangerous goods

14.2 IATA

Not dangerous goods

Article 15 – Regulatory Information

This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations and the SDS contains all the information required by the Controlled Products Regulations.

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Article 16 – Other Information

The above information is believed to be correct but does not purport to be all-inclusive and shall be used only as a guide. SignalChem shall not be held liable for any damage resulting from handling or from contact with the above product. See the Technical Specification, Packing Slip, Invoice, and Product Catalog for additional terms and conditions of sale.

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