

Safety Data Sheet

Section 1: Product and Company Identification

Product Name: Bromodeoxyuridine (BrdU)

Catalog Number: X2834

Recommended use: For research use only

Manufacturer:

Exalpha Biologicals, Inc
2 Shaker Road, Unit B101
Shirley, MA 01464
(978) 425-1370 (U.S.A.)

Emergency Telephone Numbers:

Contact National Poison Information Center

Section 2. Hazards Identification

OSHA/HCS status: This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200).

Classification of the substance or mixture:

H340 GERM CELL MUTAGENICITY - Category 1

H361 TOXIC TO REPRODUCTION (Fertility) - Category 2

H361 TOXIC TO REPRODUCTION (Unborn child) - Category 2

GHS label elements



Hazard pictograms:

Signal word: Danger

Hazard statements:

H340 - May cause genetic defects.

H361 - Suspected of damaging fertility or the unborn child.

Precautionary statements

Prevention:

P201 - Obtain special instructions before use.

P202 - Do not handle until all safety precautions have been read and understood.

P280 - Wear protective gloves. Wear eye or face protection. Wear protective clothing.

Response:

P308 + P313 - IF exposed or concerned: Get medical attention.

Storage:

P405 - Store locked up.

Disposal:

P501 - Dispose of contents and container in accordance with all local, regional, national and international regulations.

Hazards not otherwise classified: None known.

Section 3. Composition/Information on Ingredients

Substance/mixture: Mixture

Other means of identification Broxuridine

Ingredient name	Other names	%	CAS number
broxuridine	bromodeoxyuridine	≤ 2	59-14-3

Any concentration shown as a range is to protect confidentiality or is due to batch variation.

There are no additional ingredients present which, within the current knowledge of the supplier and in the concentrations applicable, are classified as hazardous to health and hence require reporting in this section.

Section 4. First Aid Measure

Description of necessary first aid measures

Eye contact: Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Continue to rinse for at least 10 minutes. Get medical attention.

Inhalation: Remove victim to fresh air and keep at rest in a position comfortable for breathing. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Get medical attention. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband. In case of inhalation of decomposition products in a fire, symptoms may be delayed. The exposed person may need to be kept under medical surveillance for 48 hours.

Skin contact: Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. Wash contaminated clothing thoroughly with water before removing it, or wear gloves. Continue to rinse for at least 10 minutes. Get medical attention. Wash clothing before reuse. Clean shoes thoroughly before reuse.

Ingestion: Wash out mouth with water. Remove dentures if any. Remove victim to fresh air and keep at rest in a position comfortable for breathing. If material has been swallowed and the exposed person is conscious, give small quantities of water to drink. Stop if the exposed person feels sick as vomiting may be dangerous. Do not induce vomiting unless directed to do so by medical personnel. If vomiting occurs, the head should be kept low so that vomit does not enter the lungs. Get medical attention. Never give anything by mouth to an unconscious person. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.

Most important symptoms/effects, acute and delayed

Potential acute health effects

Eye contact: No known significant effects or critical hazards.

Inhalation: No known significant effects or critical hazards.

Skin contact: No known significant effects or critical hazards.

Ingestion: No known significant effects or critical hazards.

Over-exposure signs/symptoms

Eye contact: No specific data.

Inhalation: Adverse symptoms may include the following:
reduced fetal weight, increase in fetal deaths, skeletal malformations

Skin contact: Adverse symptoms may include the following:
reduced fetal weight, increase in fetal deaths, skeletal malformations

Ingestion: Adverse symptoms may include the following:
reduced fetal weight, increase in fetal deaths, skeletal malformations

Indication of immediate medical attention and special treatment needed, if necessary

Notes to physician: In case of inhalation of decomposition products in a fire, symptoms may be delayed. The exposed person may need to be kept under medical surveillance for 48 hours.

Specific treatments: No specific treatment.

Protection of first-aiders: No action shall be taken involving any personal risk or without suitable training. If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Wash contaminated clothing thoroughly with water before removing it, or wear gloves.

Section 5. Fire Fighting Measures

Extinguishing media

Suitable extinguishing media: Use an extinguishing agent suitable for the surrounding fire.

Unsuitable extinguishing media: Do not use water jet.

Specific hazards arising from the chemical: In a fire or if heated, a pressure increase will occur and the container may burst.

Hazardous thermal decomposition products: Decomposition products may include the following materials:
carbon dioxide, carbon monoxide, nitrogen oxides, halogenated compounds

Special protective actions for fire-fighters: Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training.

Special protective equipment for fire-fighters: Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.

Section 6. Accidental Release Measures

Personal precautions, protective equipment and emergency procedures

For non-emergency personnel: No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilled material. Avoid breathing vapor or mist. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment.

For emergency responders: If specialized clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials. See also the information in "For nonemergency personnel".

Environmental precautions: Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air).

Methods and materials for containment and cleaning up

Small spill: Stop leak if without risk. Move containers from spill area. Dilute with water and mop up if water-soluble. Alternatively, or if water-insoluble, absorb with an inert dry material and place in an appropriate waste disposal container. Dispose of via a licensed waste disposal contractor.

Large spill: Stop leak if without risk. Move containers from spill area. Approach release from upwind. Prevent entry into sewers,

water courses, basements or confined areas. Wash spillages into an effluent treatment plant or proceed as follows. Contain and collect spillage with non-combustible, absorbent material e.g. sand, earth, vermiculite or diatomaceous earth and place in container for disposal according to local regulations (see Section 13). Dispose of via a licensed waste disposal contractor. Contaminated absorbent material may pose the same hazard as the spilled product. Note: see Section 1 for emergency contact information and Section 13 for waste disposal.

Section 7. Handling & Storage

Precautions for safe handling

Protective measures: Put on appropriate personal protective equipment (see Section 8). Avoid exposure obtain special instructions before use. Avoid exposure during pregnancy. Do not handle until all safety precautions have been read and understood. Do not get in eyes or on skin or clothing. Do not ingest. Avoid breathing vapor or mist. If during normal use the material presents a respiratory hazard, use only with adequate ventilation or wear appropriate respirator. Keep in the original container or an approved alternative made from a compatible material, kept tightly closed when not in use. Empty containers retain product residue and can be hazardous. Do not reuse container.

Advice on general occupational hygiene: Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Remove contaminated clothing and protective equipment before entering eating areas. See also Section 8 for additional information on hygiene measures.

Conditions for safe storage, including any incompatibilities: Store in accordance with local regulations. Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see Section 10) and food and drink. Store locked up. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabeled containers. Use appropriate containment to avoid environmental contamination.

Section 8. Exposure Controls and Personal Protection

Control parameters

Occupational exposure limits

Ingredient name	Exposure limits
broxuridine	None.

Appropriate engineering controls : If user operations generate dust, fumes, gas, vapor or mist, use process enclosures, local exhaust ventilation or other engineering controls to keep worker exposure to airborne contaminants below any recommended or statutory limits.

Environmental exposure controls : Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation. In some cases, fume scrubbers, filters or engineering modifications to the process equipment will be necessary to reduce emissions to acceptable levels.

Individual protection measures

Hygiene measures:

Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period.

Appropriate techniques should be used to remove potentially contaminated clothing. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.

Eye/face protection:

Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists, gases or dusts. If contact is possible, the following protection should be worn, unless the assessment indicates a higher degree of protection: safety glasses with side shields.

Skin protection

Hand protection:

Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary. Considering the parameters specified by the glove manufacturer, check during use that the gloves are still retaining their protective properties. It should be noted that the time to breakthrough for any glove material may be different for different glove manufacturers. In the case of mixtures, consisting of several substances, the protection time of the gloves cannot be accurately estimated.

Body protection:

Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.

Other skin protection:

Appropriate footwear and any additional skin protection measures should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.

Respiratory protection:

Based on the hazard and potential for exposure, select a respirator that meets the appropriate standard or certification. Respirators must be used according to a respiratory protection program to ensure proper fitting, training, and other important aspects of use.

Section 9. Physical and Chemical Properties

Appearance

Physical state: Liquid

Color: Colorless to yellow

Odor: Not available

Odor threshold: Not available

pH: Not available

Melting point: Not available

Boiling point: Not available

Flash point: Not available

Evaporation rate: Not available

Flammability (solid, gas): Not available

Lower and upper explosive (flammable) limits: Not available

Vapor pressure: Not available

Vapor density: Not available

Relative density: Not available

Density: Not available

Solubility: Not available

Solubility in water: Not available

Partition coefficient: noctanol/water: Not available

Auto-ignition temperature: Not available

Decomposition temperature: Not available

SADT: Not available

Viscosity: Not available

Flow time (ISO 2431): Not available

Section 10. Stability and reactivity

Reactivity: No specific test data related to reactivity available for this product or its ingredients.

Chemical stability: The product is stable.

Possibility of hazardous reactions: Under normal conditions of storage and use, hazardous reactions will not occur.

Under normal conditions of storage and use, hazardous polymerization will not occur.

Conditions to avoid: Avoid high temperatures. Keep away from heat and direct sunlight.

Incompatible materials: Reactive or incompatible with the following materials: oxidizing materials and reducing materials.

Hazardous decomposition products: Under normal conditions of storage and use, hazardous decomposition products should not be produced.

Section 11. Toxicological Information

Information on toxicological effects

Acute toxicity

Product/ingredient name	Result	Species	Dose	Exposure
broxuridine	LD50 Oral	Rat	8400 mg/kg	-

Irritation/Corrosion: Not available.

Sensitization: Not available.

Mutagenicity Conclusion/Summary: Not available.

Carcinogenicity Conclusion/Summary: Not available.

Reproductive toxicity Conclusion/Summary: Not available.

Teratogenicity Conclusion/Summary: Not available.

Specific target organ toxicity (single exposure): Not available.

Specific target organ toxicity (repeated exposure): Not available.

Aspiration hazard: Not available.

Information on the likely routes of exposure: Routes of entry anticipated: Oral, Dermal, Inhalation.

Potential acute health effects

Eye contact: No known significant effects or critical hazards.

Inhalation: No known significant effects or critical hazards.

Skin contact: No known significant effects or critical hazards.

Ingestion: No known significant effects or critical hazards.

Symptoms related to the physical, chemical and toxicological characteristics

Eye contact: No specific data.

Inhalation: Adverse symptoms may include the following:

reduced fetal weight, increase in fetal deaths, skeletal malformations

Skin contact: Adverse symptoms may include the following:
reduced fetal weight, increase in fetal deaths, skeletal malformations

Ingestion: Adverse symptoms may include the following:
reduced fetal weight, increase in fetal deaths, skeletal malformations

Delayed and immediate effects and also chronic effects from short and long term exposure

Short term exposure

Potential immediate effects: Not available

Potential delayed effects: Not available

Long term exposure

Potential immediate effects: Not available

Potential delayed effects: Not available

Potential chronic health effects: not available

General: No known significant effects or critical hazards.

Carcinogenicity: No known significant effects or critical hazards.

Mutagenicity: May cause genetic defects.

Teratogenicity: Suspected of damaging the unborn child.

Developmental effects: No known significant effects or critical hazards.

Fertility effects: Suspected of damaging fertility.

Numerical measures of toxicity Acute toxicity estimates: Not available.

Section 12. Ecological Information

Toxicity: Not available.

Persistence and degradability: Not available.

Bioaccumulative potential

Product/ingredient name	LogP _{ow}	BCF	Potential
broxuridine	-0.29	-	low

Mobility in soil

Soil/water partition coefficient (K_{oc}): Not available.

Other adverse effects: No known significant effects or critical hazards.

Section 13. Disposal Considerations

Disposal methods: The generation of waste should be avoided or minimized wherever possible. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Waste should not be disposed of untreated to the sewer unless fully compliant with the requirements of all authorities with jurisdiction. Waste packaging should be recycled. Incineration or landfill should only be considered when recycling is not feasible. This material and its container must be disposed of in a safe way. Care should be taken when handling emptied containers that have not been cleaned or rinsed out. Empty containers or liners may retain some product residues. Avoid dispersal of spilled material and

runoff and contact with soil, waterways, drains and sewers.

Section 14. Transport Information

	DOT Classification	IMDG	IATA
UN number	Not regulated.	Not regulated.	Not regulated.
UN proper shipping name	-	-	-
Transport hazard class (es)	-	-	-
Packing group	-	-	-
Environmental hazards	No.	No.	No.
Additional information	-	-	-

Special precautions for user: Transport within user's premises: always transport in closed containers that are upright and secure. Ensure that persons transporting the product know what to do in the event of an accident or spillage.

Transport in bulk according to
Annex II of MARPOL and the IBC
Code: Not available.

Section 15. Regulatory Information

U.S. Federal regulations: **United States inventory (TSCA 8b):** All components are listed or exempted.

Clean Air Act Section 112: Not listed
(b) Hazardous Air
Pollutants (HAPs)

Clean Air Act Section 602 Class: Not listed
I Substances

Clean Air Act Section 602 Class: Not listed
II Substances

DEA List I Chemicals: Not listed
(Precursor Chemicals)

DEA List II Chemicals: Not listed
(Essential Chemicals)

SARA 302/304

Composition/information on ingredients: No

products were found.

SARA 304 RQ: Not applicable.

SARA 311/312

Classification: Delayed (chronic) health hazard

Composition/information on ingredients

Name	%	Fire hazard	Sudden release of pressure	Reactive	Immediate (acute) health hazard	Delayed (chronic) health hazard
broxuridine	≤ 2	No.	No.	No.	No.	Yes.

SARA 313

Not applicable.

State regulations

Massachusetts: None of the components are listed.

New York : None of the components are listed.

New Jersey: None of the components are listed.

Pennsylvania: None of the components are listed.

California Prop. 65

None of the components are listed.

International regulations

Chemical Weapon Convention List Schedules I, II & III Chemicals Not listed.

Montreal Protocol (Annexes A, B, C, E) Not listed.

Stockholm Convention on Persistent Organic Pollutants

Not listed.

Rotterdam Convention on Prior Informed Consent (PIC)

Not listed.

UNECE Aarhus Protocol on POPs and Heavy Metals

Not listed.

Section 16. Other information

Revision 1

Revision Date 01 Oct 2020

Revision Note No information available.

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