MATERIAL SAFETY DATA SHEET

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Section 1 - Product and Company Information

Product Name	5-FLUORO-2'-DEOXYURIDINE
Product Number	F0503
Brand	SIGMA
Company	Sigma-Aldrich
Street Address	3050 Spruce Street
City, State, Zip, Country	SAINT LOUIS MO 63103 US
Technical Phone:	314 771 5765
Emergency Phone:	414 273 3850 Ext. 5996
Fax:	800 325 5052

Section 2 - Composition/Information on Ingredient

Substance Name	CAS #	SARA 313
(+)-5-FLUORODEOXYURIDINE	50-91-9	No

Formula C9H11FN2O5

Synonyms Deoxyfluorouridine * 2'-Deoxy-5-fluorouridine * 1-beta-D-2'-Deoxyribofuranosyl-5-flurouracil * Floxuridin * Floxuridine * 5-Fluor-1-(beta-2'-deoxyribofuranosyl)pyrimidin-2, 4(1H,3H)-dion (Czech) * Fluorodeoxyuridine * beta-5-Fluoro-2'-deoxyuridine * 5-Fluorodeoxyuridine * 5-Fluoro-2-deoxyuridine * 5-Fluorouracil deoxyriboside * 5-Fluorouracil 2'-deoxyriboside * Fluoruridine deoxyribose * FUDR * NSC-27640 * Ro 5-0360

RTECS Number: YU7525000

Section 3 - Hazards Identification

EMERGENCY OVERVIEW

Toxic (USA) Harmful (EU).
Harmful if swallowed.
Target organ(s): Bone marrow. G.I. System.

HMIS RATING

HEALTH: 2*
FLAMMABILITY: 0
REACTIVITY: 0

NFPA RATING

HEALTH: 2
FLAMMABILITY: 0
REACTIVITY: 0

*additional chronic hazards present.

For additional information on toxicity, please refer to Section 11.

Section 4 - First Aid Measures

ORAL EXPOSURE
If swallowed, wash out mouth with water provided person is conscious. Call a physician.

INHALATION EXPOSURE
If inhaled, remove to fresh air. If not breathing give artificial respiration. If breathing is difficult, give oxygen.

DERMAL EXPOSURE
In case of skin contact, flush with copious amounts of water for at least 15 minutes. Remove contaminated clothing and shoes. Call a physician.

EYE EXPOSURE
In case of contact with eyes, flush with copious amounts of water for at least 15 minutes. Assure adequate flushing by separating the eyelids with fingers. Call a physician.

Section 5 - Fire Fighting Measures

FLASH POINT
N/A

AUTOIGNITION TEMP
N/A

FLAMMABILITY
N/A

EXTINGUISHING MEDIA
Suitable: Water spray. Carbon dioxide, dry chemical powder, or appropriate foam.

FIREFIGHTING
Protective Equipment: Wear self-contained breathing apparatus and protective clothing to prevent contact with skin and eyes.
Specific Hazard(s): Emits toxic fumes under fire conditions.

Section 6 - Accidental Release Measures

PROCEDURE TO BE FOLLOWED IN CASE OF LEAK OR SPILL
Evacuate area.

PROCEDURE(S) OF PERSONAL PRECAUTION(S)
Wear self-contained breathing apparatus, rubber boots, and heavy rubber gloves.

METHODS FOR CLEANING UP
Sweep up, place in a bag and hold for waste disposal. Avoid raising dust. Ventilate area and wash spill site after material pickup is complete.

Section 7 - Handling and Storage

HANDLING
User Exposure: Do not breathe dust. Avoid contact with eyes, skin, and clothing. Avoid prolonged or repeated exposure.

STORAGE
Suitable: Keep tightly closed.

Section 8 - Exposure Controls / PPE

ENGINEERING CONTROLS
Mechanical exhaust required. Safety shower and eye bath.

PERSONAL PROTECTIVE EQUIPMENT
Respiratory: Government approved respirator.
Hand: Compatible chemical-resistant gloves.
Eye: Chemical safety goggles.

GENERAL HYGIENE MEASURES
Wash thoroughly after handling.

Section 9 - Physical/Chemical Properties

Appearance — Physical State: Solid

Property	Value	At Temperature or Pressure
Molecular Weight	246.19 AMU	
pH	N/A	
BP/BP Range	N/A	
MP/MP Range	148 °C	
Freezing Point	N/A	
Vapor Pressure	N/A	
Vapor Density	N/A	
Saturated Vapor Conc.	N/A	
SG/Density	N/A	
Bulk Density	N/A	
Odor Threshold	N/A	
Volatile%	N/A	
VOC Content	N/A	
Water Content	N/A	
Solvent Content	N/A	
Evaporation Rate	N/A	
Viscosity	N/A	
Surface Tension	N/A	
Partition Coefficient	N/A	
Decomposition Temp.	N/A	
Flash Point	N/A	
Explosion Limits	N/A	
Flammability	N/A	
Autoignition Temp	N/A	
Refractive Index	N/A	
Optical Rotation	Degree of Rotation: 10 g/l Solvent: H2O +46 - +37 (+/-1)	
Miscellaneous Data	N/A	
Solubility	N/A	

N/A = not available

Section 10 - Stability and Reactivity

STABILITY
Stable: Stable.
Materials to Avoid: Strong oxidizing agents, Strong bases.

HAZARDOUS DECOMPOSITION PRODUCTS
Hazardous Decomposition Products: Carbon monoxide, Carbon dioxide, Nitrogen oxides, Hydrogen fluoride.

HAZARDOUS POLYMERIZATION

Hazardous Polymerization: Will not occur

Section 11 - Toxicological Information

ROUTE OF EXPOSURE

Skin Contact: May cause skin irritation.
Skin Absorption: May be harmful if absorbed through the skin.
Eye Contact: May cause eye irritation.
Inhalation: Material may be irritating to mucous membranes and upper respiratory tract. May be harmful if inhaled.
Ingestion: Harmful if swallowed.

TARGET ORGAN(S) OR SYSTEM(S)

Bone marrow. G.I. System. Vascular system. Immune system. Heart.

SIGNS AND SYMPTOMS OF EXPOSURE

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

TOXICITY DATA

Oral
Rat
215 mg/kg
LD50

Intraperitoneal
Rat
1600 MG/KG
LD50

Oral
Mouse
147 mg/kg
LD50

Intraperitoneal
Mouse
650 MG/KG
LD50
Remarks: Gastrointestinal:Hypermotility, diarrhea.
Gastrointestinal:Nausea or vomiting.

CHRONIC EXPOSURE - TERATOGEN

Species: Rat
Dose: 100 MG/KG
Route of Application: Intraperitoneal
Exposure Time: (12D PREG)
Result: Specific Developmental Abnormalities: Craniofacial (including nose and tongue). Specific Developmental Abnormalities: Other developmental abnormalities.

Species: Rat
Dose: 25 MG/KG
Route of Application: Intraperitoneal
Exposure Time: (12D PREG)
Result: Specific Developmental Abnormalities: Musculoskeletal system.

Species: Rat
Dose: 25 MG/KG

Route of Application: Intraperitoneal
Exposure Time: (10D PREG)
Result: Specific Developmental Abnormalities: Central nervous system. Specific Developmental Abnormalities: Eye, ear. Specific Developmental Abnormalities: Musculoskeletal system.

Species: Rat
Dose: 50 MG/KG
Route of Application: Intravenous
Exposure Time: (11D PREG)
Result: Specific Developmental Abnormalities: Musculoskeletal system.

Species: Mouse
Dose: 60 MG/KG
Route of Application: Intraperitoneal
Exposure Time: (9D PREG)
Result: Specific Developmental Abnormalities: Central nervous system. Specific Developmental Abnormalities: Craniofacial (including nose and tongue). Specific Developmental Abnormalities: Musculoskeletal system.

Species: Mouse
Dose: 5 MG/KG
Route of Application: Intraperitoneal
Exposure Time: (12D PREG)
Result: Specific Developmental Abnormalities: Musculoskeletal system.

Species: Mouse
Dose: 25 MG/KG
Route of Application: Intraperitoneal
Exposure Time: (10D PREG)
Result: Effects on Embryo or Fetus: Fetotoxicity (except death, e.g., stunted fetus).

Species: Mouse
Dose: 45 MG/KG
Route of Application: Unreported
Exposure Time: (12D PREG)
Result: Effects on Embryo or Fetus: Cytological changes (including somatic cell genetic material). Specific Developmental Abnormalities: Central nervous system.

CHRONIC EXPOSURE - MUTAGEN
Result: Laboratory experiments have shown mutagenic effects.

Species: Human
Dose: 24 MG/L
Cell Type: Other cell types
Mutation test: DNA damage

Species: Human
Dose: 1 MMOL/L
Cell Type: Other cell types
Mutation test: DNA damage

Species: Human
Dose: 500 NMOL/L
Cell Type: leukocyte
Mutation test: DNA

Species: Human
Dose: 100 UMOL/L
Cell Type: mammary gland
Mutation test: DNA inhibition

Species: Human
Dose: 100 NMOL/L
Cell Type: HeLa cell
Mutation test: Unscheduled DNA synthesis

Species: Human
Dose: 10 UMOL/L
Cell Type: lymphocyte
Mutation test: DNA inhibition

Species: Human
Dose: 1 MG/L
Cell Type: Other cell types
Mutation test: Other mutation test systems

Species: Human
Dose: 500 UG/L
Cell Type: Other cell types
Mutation test: DNA inhibition

Species: Human
Dose: 10 UMOL/L
Cell Type: HeLa cell
Mutation test: DNA inhibition

Species: Human
Dose: 25 MG/L
Cell Type: lymphocyte
Mutation test: DNA inhibition

Species: Human
Dose: 1 UMOL/L
Cell Type: Other cell types
Mutation test: DNA inhibition

Species: Human
Dose: 1 UMOL/L
Cell Type: Other cell types
Mutation test: Other mutation test systems

Species: Human
Dose: 10 MG/L
Cell Type: Other cell types
Mutation test: Other mutation test systems

Species: Human
Dose: 5 MG/L
Cell Type: HeLa cell
Mutation test: Other mutation test systems

Species: Human
Dose: 100 UMOL/L
Cell Type: mammary gland
Mutation test: Other mutation test systems

Species: Human
Dose: 200 UMOL/L

Exposure Time: 24H
Cell Type: leukocyte
Mutation test: Cytogenetic analysis

Species: Human
Dose: 200 NMOL/L
Cell Type: lymphocyte
Mutation test: Cytogenetic analysis

Species: Human
Dose: 50 MG/L
Cell Type: leukocyte
Mutation test: Cytogenetic analysis

Species: Rat
Dose: 5 MG/L
Cell Type: Other cell types
Mutation test: DNA inhibition

Species: Mouse
Route: Intraperitoneal
Dose: 500 MG/KG
Mutation test: Micronucleus test

Species: Mouse
Dose: 100 NMOL/L
Exposure Time: 24H
Cell Type: Embryo
Mutation test: Morphological transformation.

Species: Mouse
Route: Intraperitoneal
Dose: 500 UMOL/KG
Mutation test: Other mutation test systems

Species: Mouse
Route: Intraperitoneal
Dose: 100 MG/KG
Mutation test: DNA inhibition

Species: Mouse
Dose: 2 UMOL/L
Exposure Time: 23M
Cell Type: fibroblast
Mutation test: DNA inhibition

Species: Mouse
Dose: 300 UG/L
Cell Type: leukocyte
Mutation test: DNA inhibition

Species: Mouse
Route: Intraperitoneal
Dose: 45 MG/KG
Mutation test: Other mutation test systems

Species: Mouse
Dose: 100 NMOL/L
Cell Type: Embryo
Mutation test: DNA inhibition

Species: Mouse

Dose: 1 UMOL/L
Cell Type: Other cell types
Mutation test: DNA inhibition

Species: Mouse
Dose: 58 UMOL/L
Cell Type: leukocyte
Mutation test: Other mutation test systems

Species: Mouse
Route: Intraperitoneal
Dose: 100 MG/KG
Mutation test: Cytogenetic analysis

Species: Mouse
Dose: 6 NMOL/L
Cell Type: Embryo
Mutation test: Mutation in mammalian somatic cells.

Species: Hamster
Dose: 100 MG/L
Cell Type: ovary
Mutation test: DNA inhibition

Species: Hamster
Dose: 10 UMOL/L
Cell Type: fibroblast
Mutation test: Cytogenetic analysis

Species: Hamster
Dose: 10 UMOL/L
Cell Type: fibroblast
Mutation test: Sister chromatid exchange

Species: Hamster
Dose: 200 UG/L
Cell Type: ovary
Mutation test: Mutation in mammalian somatic cells.

Species: Hamster
Dose: 150 NMOL/L
Cell Type: lung
Mutation test: Mutation in mammalian somatic cells.

CHRONIC EXPOSURE - REPRODUCTIVE HAZARD

Species: Rat
Dose: 100 MG/KG
Route of Application: Intraperitoneal
Exposure Time: (12D PREG)
Result: Effects on Fertility: Post-implantation mortality (e.g., dead and/or resorbed implants per total number of implants).
Specific Developmental Abnormalities: Craniofacial (including nose and tongue).

Species: Rat
Dose: 25 MG/KG
Route of Application: Unreported
Exposure Time: (10D PREG)
Result: Effects on Fertility: Litter size (e.g.; # fetuses per litter; measured before birth).

Species: Mouse
Dose: 10 MG/KG
Route of Application: Intraperitoneal
Exposure Time: (16D PREG)
Result: Effects on Newborn: Biochemical and metabolic.

Species: Mouse
Dose: 10 MG/KG
Route of Application: Intraperitoneal
Exposure Time: (8D PREG)
Result: Effects on Fertility: Post-implantation mortality (e.g., dead and/or resorbed implants per total number of implants).
Specific Developmental Abnormalities: Musculoskeletal system.

Section 12 - Ecological Information

No data available.

Section 13 - Disposal Considerations

APPROPRIATE METHOD OF DISPOSAL OF SUBSTANCE OR PREPARATION
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. Observe all federal, state, and local environmental regulations.

Section 14 - Transport Information

DOT
Proper Shipping Name: None
Non-Hazardous for Transport: This substance is considered to be non-hazardous for transport.

IATA
Non-Hazardous for Air Transport: Non-hazardous for air transport.

Section 15 - Regulatory Information

EU ADDITIONAL CLASSIFICATION
Symbol of Danger: Xn
Indication of Danger: Harmful.
R: 22
Risk Statements: Harmful if swallowed.
S: 22 36
Safety Statements: Do not breathe dust. Wear suitable protective clothing.

US CLASSIFICATION AND LABEL TEXT
Indication of Danger: Toxic (USA) Harmful (EU).
Risk Statements: Harmful if swallowed.
Safety Statements: Do not breathe dust. Wear suitable protective clothing.
US Statements: Target organ(s): Bone marrow. G.I. System.

UNITED STATES REGULATORY INFORMATION
SARA LISTED: No

CANADA REGULATORY INFORMATION
WHMIS Classification: This product has been classified in accordance with the hazard criteria of the CPR, and the MSDS

contains all the information required by the CPR.
DSL: No
NDSL: No

Section 16 - Other Information

DISCLAIMER

For R&D use only. Not for drug, household or other uses.

WARRANTY

The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. Sigma-Aldrich Inc., shall not be held liable for any damage resulting from handling or from contact with the above product. See reverse side of invoice or packing slip for additional terms and conditions of sale.