



5-FLUOROURACIL (1,3-15N2, 99%)

Safety Data Sheet

according to Regulation (EC) No. 1907/2006 (REACH) with its amendment Regulation (EU) 2015/830 and according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

Date of issue: 05/05/2011

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Version: 2.0

NLM-798

SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1. Product identifier

Product form : Substance
Substance name : 5-FLUOROURACIL (1,3-15N2, 99%)
EC No : 200-085-6 (Unlabeled)
CAS No : 68941-95-7
Product code : NLM-798
Formula : C4H3F*N2O2
Synonyms : 5-FU / 2,4-Dihydroxy-5-fluoropyrimidine / 5-Fluoro-2,4(1H,3H)-pyrimidinedione

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

1.2.1. Relevant identified uses

Main use category : Professional use
Industrial/Professional use spec : For professional use only

1.2.2. Uses advised against

No additional information available

1.3. Details of the supplier of the safety data sheet

Cambridge Isotope Laboratories, Inc.
50 Frontage Road
Andover, MA 01810
USA

USA: 1-800-322-1174 Int: 1-978-749-8000
cilsales@isotope.com www.isotope.com

Emergency telephone number

Emergency numbers:

Chemtrec: 1-800-424-9300 (24 hours)
International: 1-703-741-5970 (24 hours)

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

Classification according to Regulation (EC) No. 1272/2008 [CLP]

Acute Tox. 3 (Oral) H301
Carc. 2 H351
Repr. 1A H360
STOT RE 2 H373

Full text of hazard classes and H-statements : see section 16

Classification according to Directive 67/548/EEC [DSD] or 1999/45/EC [DPD]

T; R25

Xn ;R40/R48
Repr.Cat.1; R60
Repr.Cat.1; R61

Full text of R-phrases: see section 16

GHS-US classification

Acute Tox. 3 (Oral) H301
Carc. 2 H351
Repr. 1A H360
STOT RE 2 H373

Full text of H statements : see section 16

Adverse physicochemical, human health and environmental effects

No additional information available

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2.2. Label elements

Labeling according to Regulation (EC) No. 1272/2008 [CLP]

Hazard pictograms (CLP) :



Signal word (CLP) :

Danger

Hazard statements (CLP) :

H301 - Toxic if swallowed
H351 - Suspected of causing cancer
H360 - May damage fertility or the unborn child
H373 - May cause damage to organs through prolonged or repeated exposure

Precautionary statements (CLP) :

P260 - Do not breathe dust, fume, gas, mist, spray, vapors
P264 - Wash hands, forearms and face thoroughly after handling
P270 - Do not eat, drink or smoke when using this product
P280 - Wear protective clothing, protective gloves
P301+P310 - IF SWALLOWED: Immediately call a doctor, a POISON CENTER
P314 - Get medical advice/attention if you feel unwell
P330 - Rinse mouth
P405 - Store locked up

GHS-US labeling

Hazard pictograms (GHS-US) :



Signal word (GHS-US) :

Danger

Hazard statements (GHS-US) :

H301 - Toxic if swallowed
H351 - Suspected of causing cancer
H360 - May damage fertility or the unborn child
H373 - May cause damage to organs through prolonged or repeated exposure

Precautionary statements (GHS-US) :

P201 - Obtain special instructions before use
P202 - Do not handle until all safety precautions have been read and understood
P260 - Do not breathe dust, fume, gas, mist, spray, vapors
P264 - Wash hands, forearms and face thoroughly after handling
P270 - Do not eat, drink or smoke when using this product
P280 - Wear protective clothing, protective gloves
P301+P310 - If swallowed: Immediately call a doctor
P308+P313 - If exposed or concerned: Get medical advice/attention
P314 - Get medical advice/attention if you feel unwell
P321 - Specific treatment (see Hazardous component(s) for labeling on this label)
P330 - Rinse mouth
P405 - Store locked up
P501 - Dispose of contents/container to hazardous or special waste collection point, in accordance with local, regional, national and/or international regulation

2.3. Other hazards

No additional information available

SECTION 3: Composition/Information on ingredients

3.1. Substances

Name	Product identifier	%	Classification according to Directive 67/548/EEC
5-FLUOROURACIL (1,3-15N2, 99%)	(CAS No) 68941-95-7 (EC No) 200-085-6 (Unlabeled)	100	T; R25 Repr.Cat.1; R60 Repr.Cat.1; R61

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Name	Product identifier	%	Classification according to Regulation (EC) No. 1272/2008 [CLP]
5-FLUOROURACIL (1,3-15N2, 99%)	(CAS No) 68941-95-7 (EC No) 200-085-6 (Unlabeled)	100	Acute Tox. 3 (Oral), H301 Carc. 2, H351 Repr. 1A, H360 STOT RE 2, H373

Full text of R- and H- phrases: see section 16

Name	Product identifier	%	GHS-US classification
5-FLUOROURACIL (1,3-15N2, 99%) (Main constituent)	(CAS No) 68941-95-7	100	Acute Tox. 3 (Oral), H301 Carc. 2, H351 Repr. 1A, H360 STOT RE 2, H373

Full text of H-phrases: see section 16

3.2. Mixtures

Not applicable

SECTION 4: First aid measures

4.1. Description of first aid measures

First-aid measures general	: If you feel unwell, seek medical advice (show the label where possible). Evacuate danger area.
First-aid measures after inhalation	: When symptoms occur: go into open air and ventilate suspected area. If not breathing, give artificial respiration. Get medical advice/attention.
First-aid measures after skin contact	: Wash with plenty of soap and water. Get immediate medical advice/attention.
First-aid measures after eye contact	: Rinse cautiously with water for several minutes.
First-aid measures after ingestion	: Never give anything by mouth to an unconscious person. Rinse mouth out with water. Get medical advice/attention.

4.2. Most important symptoms and effects, both acute and delayed

Symptoms/injuries after inhalation	: May be harmful if inhaled. May cause respiratory irritation.
Symptoms/injuries after skin contact	: May be harmful in contact with skin. May cause moderate irritation.
Symptoms/injuries after eye contact	: May cause eye irritation.
Symptoms/injuries after ingestion	: Toxic if swallowed.

4.3. Indication of any immediate medical attention and special treatment needed

No additional information available

SECTION 5: Firefighting measures

5.1. Extinguishing media

Suitable extinguishing media : Water spray, dry chemical powder, alcohol-resistant foam, carbon dioxide (CO₂).

5.2. Special hazards arising from the substance or mixture

No additional information available

5.3. Advice for firefighters

Firefighting instructions	: Fight fire with normal precautions from a reasonable distance. Wear a self contained breathing apparatus. Do not enter fire area without proper protective equipment, including respiratory protection.
Protection during firefighting	: Do not enter fire area without proper protective equipment, including respiratory protection. Wear recommended personal protective equipment.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

6.1.1. For non-emergency personnel

Emergency procedures : Avoid breathing vapors, mist, gas. Avoid dust formation.

6.1.2. For emergency responders

Protective equipment : Do not attempt to take action without suitable protective equipment. For further information refer to section 8: "Exposure controls/personal protection".

6.2. Environmental precautions

Prevent entry to sewers and public waters. Do not allow to enter drains or water courses. Avoid release to the environment.

6.3. Methods and material for containment and cleaning up

For containment	: Take up mechanically (sweeping, shoveling) and collect in suitable container for disposal.
Methods for cleaning up	: This material and its container must be disposed of in a safe way, and as per local legislation.

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6.4. Reference to other sections

For further information refer to section 13.

SECTION 7: Handling and storage

7.1. Precautions for safe handling

- Precautions for safe handling : Avoid contact with skin and eyes. Avoid formation of dust and aerosols. Provide appropriate exhaust ventilation at places where dust is formed. Further processing of solid materials may result in the formation of combustible dusts. The potential for combustible dust formation should be taken into consideration before additional processing occurs.
- Hygiene measures : Wash hands and other exposed areas with mild soap and water before eating, drinking or smoking and when leaving work. Handle in accordance with good industrial hygiene and safety practice.

7.2. Conditions for safe storage, including any incompatibilities

- Technical measures : Store in a well-ventilated place. Keep container tightly closed.
- Storage conditions : Store at room temperature away from light and moisture.

7.3. Specific end use(s)

No additional information available

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

No additional information available

8.2. Exposure controls

- Appropriate engineering controls : Wash hands and other exposed areas with mild soap and water before eating, drinking or smoking and when leaving work.
- Personal protective equipment : Gloves. Protective clothing. Protective goggles. Self-contained breathing apparatus.



- Materials for protective clothing : Wear suitable protective clothing and gloves.
- Hand protection : Wear suitable protective clothing and gloves.
- Eye protection : Wear eye protection. Chemical goggles or face shield with safety glasses.
- Skin and body protection : Wear suitable protective clothing, gloves and eye/face protection.
- Respiratory protection : In case of inadequate ventilation wear respiratory protection. Approved supplied air respirator.
- Environmental exposure controls : Avoid release to the environment.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

- Physical state : Solid
- Appearance : Powder
- Molecular mass : 132.06 g/mol (Labeled)
- Color : White
- Odor : No data available
- Odor threshold : No data available
- pH : No data available
- Relative evaporation rate (butyl acetate=1) : No data available
- Melting point : 282 - 286 °C (540 - 547°F) - dec
- Freezing point : No data available
- Boiling point : No data available
- Flash point : No data available
- Auto-ignition temperature : No data available
- Decomposition temperature : No data available
- Flammability (solid, gas) : No data available
- Vapor pressure : No data available
- Relative vapor density at 20 °C : No data available
- Relative density : No data available
- Solubility : No data available
- Log Pow : -0.677

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Log Kow	: No data available
Viscosity, kinematic	: No data available
Viscosity, dynamic	: No data available
Explosive properties	: No data available
Oxidizing properties	: No data available
Explosion limits	: No data available

9.2. Other information

No additional information available

SECTION 10: Stability and reactivity

10.1. Reactivity

No additional information available.

10.2. Chemical stability

Stable if stored under recommended conditions.

10.3. Possibility of hazardous reactions

No additional information available.

10.4. Conditions to avoid

Heat.

10.5. Incompatible materials

Strong oxidizing agents. Strong bases.

10.6. Hazardous decomposition products

Under fire conditions - Carbon oxides. Hydrogen fluoride. Nitrogen oxides.

SECTION 11: Toxicological information

11.1. Information on toxicological effects

Acute toxicity : Oral: Toxic if swallowed.

5-FLUOROURACIL (1,3-15N2, 99%) (68941-95-7)	
LD50 oral rat	230 mg/kg
ATE CLP (oral)	100.000 mg/kg body weight

Skin corrosion/irritation	: Not classified
Serious eye damage/irritation	: Not classified
Respiratory or skin sensitization	: Causes photosensitivity. Exposure to light can result in allergic reactions resulting in dermatologic lesions, which can vary from sunburnlike responses to edematous, vesiculated lesions, or bullae
Germ cell mutagenicity	: Laboratory experiments have shown mutagenic effects
Carcinogenicity	: Suspected of causing cancer
Reproductive toxicity	: May damage fertility or the unborn child. Reproductive toxicity – mouse – Interperitoneal Effects on fertility: Post - implantation mortality (e.g dead and/or resorbed implants per total number of implants). Specific Developmental Abnormalities: Other developmental abnormalities Effects on Fertilities: Abortion. Reproductive toxicity - Hamster – Intramuscular Effects on fertility: Post - implantation mortality (e.g dead and/or resorbed implants per total number of implants). Reproductive toxicity – mouse – Intravenous Paternal Effects: Spermatogenesis (including genetic material, sperm morphology, motility and count). Reproductive toxicity – rat – Interperitoneal Effects on fertility : Post - implantation mortality (e.g dead and/or resorbed implants per total number of implants) Effects on Embryo or Fetus: Fetotoxicity (except death, e.g stunted fetus) Specific Developmental Abnormalities: Other developmental abnormalities Effects or Embryo or Fetus: Fetal death
Specific target organ toxicity – single exposure	: Not classified

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Specific target organ toxicity – repeated exposure	: May cause damage to organs through prolonged or repeated exposure.
Aspiration hazard	: Not classified
Potential Adverse human health effects and symptoms	: This information is based on our current knowledge and is intended to describe the product for the purposes of health, safety and environmental requirements only. It should not therefore be construed as guaranteeing any specific property of the product. Nausea, headache, vomiting, anorexia, diarrhea, stomatitis, fever, weakness, depression, skin irritation, erythema, bone marrow depression, bleeding syndrome, renal impairment, death. Stomach - Irregularities - Based on Human Evidence.
IARC group	: 3
Symptoms/injuries after inhalation	: May be harmful if inhaled. May cause respiratory irritation
Symptoms/injuries after skin contact	: May be harmful in contact with skin. May cause moderate irritation
Symptoms/injuries after eye contact	: May cause eye irritation
Symptoms/injuries after ingestion	: Toxic if swallowed.

SECTION 12: Ecological information

12.1. Toxicity

Ecology - general : The product is not considered harmful to aquatic organisms or to cause long-term adverse effects in the environment.

5-FLUOROURACIL (1,3-15N2, 99%) (68941-95-7)

LC50 fish 1	2420 mg/l Pimephales promelas (fathead minnow) - 120 h
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12.2. Persistence and degradability

No additional information available

12.3. Bioaccumulative potential

No additional information available

12.4. Mobility in soil

No additional information available

12.5. Results of PBT and vPvB assessment

No additional information available

12.6. Other adverse effects

No additional information available

SECTION 13: Disposal considerations

13.1. Waste treatment methods

Regional legislation (waste) : Waste materials should be disposed of under conditions which meet Federal, State, and Local environmental control regulations.

Product/Packaging disposal recommendations: : Offer surplus and non-recyclable solutions to a licensed disposal company. Contact a licensed professional waste disposal service to dispose of this material.

Ecology - waste materials : Dispose of as unused product.

SECTION 14: Transport information

In accordance with ADR / RID / IMDG / IATA / ADN

14.1. UN number

UN-No.(DOT)	: 2811
DOT NA no.	UN2811

14.2. UN proper shipping name

Proper Shipping Name (DOT)	: Toxic solids, organic, n.o.s.
Class (DOT)	: 6.1 - Class 6.1 - Poisonous materials 49 CFR 173.132
Hazard labels (DOT)	: 6.1 - Poison



DOT Symbols	: G - Identifies PSN requiring a technical name
Packing group (DOT)	: III - Minor Danger

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DOT Special Provisions (49 CFR 172.102)	: IB8 - Authorized IBCs: Metal (11A, 11B, 11N, 21A, 21B, 21N, 31A, 31B and 31N); Rigid plastics (11H1, 11H2, 21H1, 21H2, 31H1 and 31H2); Composite (11HZ1, 11HZ2, 21HZ1, 21HZ2, 31HZ1 and 31HZ2); Fiberboard (11G); Wooden (11C, 11D and 11F); Flexible (13H1, 13H2, 13H3, 13H4, 13H5, 13L1, 13L2, 13L3, 13L4, 13M1 or 13M2). IP3 - Flexible IBCs must be sift-proof and water-resistant or must be fitted with a sift-proof and water-resistant liner. T1 - 1.5 178.274(d)(2) Normal..... 178.275(d)(2) TP33 - The portable tank instruction assigned for this substance applies for granular and powdered solids and for solids which are filled and discharged at temperatures above their melting point which are cooled and transported as a solid mass. Solid substances transported or offered for transport above their melting point are authorized for transportation in portable tanks conforming to the provisions of portable tank instruction T4 for solid substances of packing group III or T7 for solid substances of packing group II, unless a tank with more stringent requirements for minimum shell thickness, maximum allowable working pressure, pressure-relief devices or bottom outlets are assigned in which case the more stringent tank instruction and special provisions shall apply. Filling limits must be in accordance with portable tank special provision TP3. Solids meeting the definition of an elevated temperature material must be transported in accordance with the applicable requirements of this subchapter.
DOT Packaging Exceptions (49 CFR 173.xxx)	: 153
DOT Packaging Non Bulk (49 CFR 173.xxx)	: 213
DOT Packaging Bulk (49 CFR 173.xxx)	: 240

14.3. Additional information

Emergency Response Guide (ERG) Number	: 154
Other information	: No supplementary information available.

Overland transport

Packing group (ADR)	: III
Class (ADR)	: 6.1 - Toxic substances
Hazard identification number (Kemler No.)	: 60
Classification code (ADR)	: T2
Hazard labels (ADR)	: 6.1 - Toxic substances



Orange plates	:  
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Tunnel restriction code (ADR)	: E
Limited quantities (ADR)	: 5kg
EAC	: 2X
Excepted quantities (ADR)	: E1

Transport by sea

DOT Vessel Stowage Location	: A - The material may be stowed "on deck" or "under deck" on a cargo vessel and on a passenger vessel.
MFAG-No	: 154

Air transport

DOT Quantity Limitations Passenger aircraft/rail (49 CFR 173.27)	: 100 kg
DOT Quantity Limitations Cargo aircraft only (49 CFR 175.75)	: 200 kg
Civil Aeronautics Law	: Toxic and infectious substances/Toxic substances

14.4. Environmental hazards

Other information	: No supplementary information available.
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14.5. Special precautions for user

14.6. Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

Not applicable

SECTION 15: Regulatory information

15.1. US Federal regulations

5-FLUOROURACIL (1,3-15N2, 99%) (68941-95-7)	
SARA Section 302 Threshold Planning Quantity (TPQ)	Listed on the United States SARA Section 302
SARA Section 311/312 Hazard Classes	Immediate (acute) health hazard Delayed (chronic) health hazard
SARA Section 313 - Emission Reporting	Not subject to reporting requirements of the United States SARA Section 313

15.2. International regulations

CANADA

5-FLUOROURACIL (1,3-15N2, 99%) (68941-95-7)
Listed on the Canadian DSL (Domestic Substances List)

15.2.1. National regulations

No additional information available

15.3. US State regulations

5-FLUOROURACIL (1,3-15N2, 99%)(68941-95-7)	
U.S. - California - Proposition 65 - Carcinogens List	No
U.S. - California - Proposition 65 - Developmental Toxicity	Yes
U.S. - California - Proposition 65 - Reproductive Toxicity - Female	No
U.S. - California - Proposition 65 - Reproductive Toxicity - Male	No
State or local regulations	U.S. - Massachusetts - Right To Know List U.S. - Pennsylvania - RTK (Right to Know) List U.S. - New Jersey - Right to Know Hazardous Substance List

SECTION 16: Other information

Other information : This product is not radioactive. The data given for this product are those of the corresponding unlabeled compound, unless specifically indicated otherwise. Health and safety data for labeled compounds are generally not available, but are assumed to be similar or identical to the corresponding unlabeled compound.

Full text of R-, H- and EUH-phrases:

Acute Tox. 3 (Oral)	Acute toxicity (oral) Category 3
Carc. 2	Carcinogenicity Category 2
Repr. 1A	Reproductive toxicity Category 1A
STOT RE 2	Specific target organ toxicity (repeated exposure) Category 2
H301	Toxic if swallowed
H351	Suspected of causing cancer
H360	May damage fertility or the unborn child
H373	May cause damage to organs through prolonged or repeated exposure
R25	Toxic if swallowed
R60	May impair fertility
R61	May cause harm to the unborn child
T	Toxic

NFPA health hazard

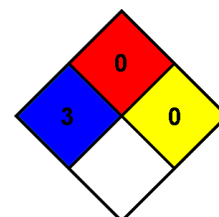
: 3 - Materials that, under emergency conditions, can cause serious or permanent injury.

NFPA fire hazard

: 0 - Materials that will not burn under typical dire conditions, including intrinsically noncombustible materials such as concrete, stone, and sand.

NFPA reactivity

: 0 - Material that in themselves are normally stable, even under fire conditions.



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HMIS III Rating

Health	: 3 Serious Hazard - Major injury likely unless prompt action is taken and medical treatment is given
Flammability	: 0 Minimal Hazard
Physical	: 0 Minimal Hazard

CIL Multi-Solvent Mixture SDS

This information is based on our current knowledge and is intended to describe the product for the purposes of health, safety and environmental requirements only. It should not therefore be construed as guaranteeing any specific property of the product