



# MATERIAL SAFETY DATA SHEET

according to the Global Harmonized System

Date of issue: 02/04/2013

Version 1.0

## SECTION 1. Identification

### Product identifier

Product number 818505  
Product name 5-Fluorouracil for synthesis

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

Identified uses Chemical for synthesis

### Details of the supplier of the safety data sheet

Company EMD Millipore Corporation | 290 Concord Road, Billerica, MA 01821,  
United States of America | SDS Phone Support: +1-978-715-1335 |  
General Inquiries: +1-978-751-4321 | Monday to Friday, 9:00 AM to  
4:00 PM Eastern Time (GMT-5)  
  
e-mail: mm\_sds@merckgroup.com

Emergency telephone 613-996-6666 CANUTEC (Canada)  
+1-703-527-3887 CHEMTREC (International)  
24 Hours/day; 7 Days/week

## SECTION 2. Hazards identification

### GHS Classification

Carcinogenicity, Category 2, H351  
Acute toxicity, Category 3, Oral, H301

For the full text of the H-Statements mentioned in this Section, see Section 16.

### GHS-Labeling

#### Hazard pictograms



Signal Word  
Danger

#### Hazard Statements

H301 Toxic if swallowed.  
H351 Suspected of causing cancer.

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*Precautionary Statements*

P262 Do not get in eyes, on skin, or on clothing.

P281 Use personal protective equipment as required.

P309 + P310 IF exposed or if you feel unwell: Immediately call a POISON CENTER or doctor/physician.

**Other hazards**

None known.

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**SECTION 3. Composition/information on ingredients**

Formula	C <sub>4</sub> H <sub>3</sub> FN <sub>2</sub> O <sub>2</sub> (Hill)
CAS-No.	51-21-8
Molar mass	130.08 g/mol

**Hazardous ingredients**

*Chemical Name (Concentration)*

CAS-No.

*5-fluorouracil (>= 90 % - <= 100 % )*

51-21-8

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**SECTION 4. First aid measures**

**Description of first-aid measures**

*Inhalation*

After inhalation: fresh air. Get medical attention.

*Skin contact*

After skin contact: wash off with plenty of water. Remove contaminated clothing. Get medical attention.

*Eye contact*

After eye contact: rinse out with plenty of water with the eyelid held wide open. Call in ophthalmologist if necessary.

*Ingestion*

If swallowed: give water to drink (two glasses at most). Seek medical advice immediately. In exceptional cases only, if medical care is not available within one hour, induce vomiting (only in persons who are wide awake and fully conscious), administer activated charcoal (20 - 40 g in a 10% slurry) and consult a doctor as quickly as possible.

Never give anything by mouth to an unconscious person.

**Most important symptoms and effects, both acute and delayed**

irritant effects, Diarrhea, Nausea, Vomiting, Stomach/intestinal disorders

**Indication of any immediate medical attention and special treatment needed**

No information available.

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**SECTION 5. Fire-fighting measures**

**Extinguishing media**

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*Suitable extinguishing media*

Water, Carbon dioxide (CO<sub>2</sub>), Foam, Dry powder

*Unsuitable extinguishing media*

For this substance/mixture no limitations of extinguishing agents are given.

**Special hazards arising from the substance or mixture**

Combustible material

Development of hazardous combustion gases or vapors possible in the event of fire.

Fire may cause evolution of:

Hydrogen fluoride, nitrogen oxides

**Advice for firefighters**

*Special protective equipment for fire-fighters*

Stay in danger area only with self-contained breathing apparatus. Prevent skin contact by keeping a safe distance or by wearing suitable protective clothing.

*Further information*

Suppress (knock down) gases/vapors/mists with a water spray jet. Prevent fire extinguishing water from contaminating surface water or the ground water system.

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**SECTION 6. Accidental release measures**

**Personal precautions, protective equipment and emergency procedures**

Advice for non-emergency personnel: Avoid substance contact. Avoid inhalation of dusts. Ensure adequate ventilation. Evacuate the danger area, observe emergency procedures, consult an expert.

Advice for emergency responders: Protective equipment see section 8.

**Environmental precautions**

Do not empty into drains.

**Methods and materials for containment and cleaning up**

Cover drains. Collect, bind, and pump off spills.

Observe possible material restrictions (see sections 7 and 10).

Take up dry. Dispose of properly. Clean up affected area. Avoid generation of dusts.

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**SECTION 7. Handling and storage**

**Precautions for safe handling**

Work under hood. Do not inhale substance/mixture.

Observe label precautions.

**Conditions for safe storage, including any incompatibilities**

Tightly closed. Dry. Protected from light. Keep locked up or in an area accessible only to qualified or authorized persons.

Store at +15°C to +25°C (+59°F to +77°F).

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**SECTION 8. Exposure controls/personal protection**

**Exposure limit(s)**

Contains no substances with occupational exposure limit values.

**Engineering measures**

Technical measures and appropriate working operations should be given priority over the use of personal protective equipment.

**Individual protection measures**

Protective clothing should be selected specifically for the workplace, depending on concentration and quantity of the hazardous substances handled. The chemical resistance of the protective equipment should be inquired at the respective supplier.

*Hygiene measures*

Immediately change contaminated clothing. Apply skin- protective barrier cream. Wash hands and face after working with substance. Work under hood. Do not inhale substance/mixture.

*Eye/face protection*

Safety glasses

*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.

*Other protective equipment:*

protective clothing

*Respiratory protection*

required when dusts are generated.

Use a properly fitted, air-purifying or air-fed respirator complying with an approved standard if a risk assessment indicates this is necessary. Respirator selection must be based on known or anticipated exposure levels, the hazards of the product and the safe working limits of the selected respirator.

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**SECTION 9. Physical and chemical properties**

Physical state	powder, finocrystalline
Color	white
Odor	odorless
Odor Threshold	not applicable
pH	4.3 - 5.3 at 10 g/l 68 °F (20 °C)
Melting point	282 - 283 °C (decomposition)
Boiling point/boiling range	374 - 392 °F (190 - 200 °C) at 0.13 hPa

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Flash point	No information available.
Evaporation rate	No information available.
Flammability (solid, gas)	No information available.
Lower explosion limit	No information available.
Upper explosion limit	No information available.
Vapor pressure	No information available.
Relative vapor density	No information available.
Relative density	No information available.
Water solubility	12 g/l at 68 °F (20 °C)
Partition coefficient: n-octanol/water	log Pow: -0.89 (experimental) (Lit.) Bioaccumulation is not expected (log Pow <1).
Autoignition temperature	No information available.
Decomposition temperature	> 392 °F (> 200 °C)
Viscosity, dynamic	No information available.
Explosive properties	Not classified as explosive.

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**SECTION 10. Stability and reactivity**

**Reactivity**

The following applies in general to flammable organic substances and mixtures: in correspondingly fine distribution, when whirled up a dust explosion potential may generally be assumed.

**Chemical stability**

heat-sensitive  
Sensitivity to light

**Possibility of hazardous reactions**

Violent reactions possible with:  
Strong oxidizing agents, Bases

**Conditions to avoid**

Strong heating (decomposition).

**Incompatible materials**

no information available

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**Hazardous decomposition products**  
in the event of fire: See section 5.

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**SECTION 11. Toxicological information**

**Information on toxicological effects**

*Likely route of exposure*

Eye contact, Skin contact, Ingestion

*Acute oral toxicity*

LD50 rat: 230 mg/kg (RTECS)

Symptoms: Irritations of mucous membranes in the mouth, pharynx, oesophagus and gastrointestinal tract.

absorption

*Acute dermal toxicity*

absorption

*Skin irritation*

slight irritation

*CMR effects*

Carcinogenicity:

Suspected of causing cancer.

*Specific target organ systemic toxicity - single exposure*

The substance or mixture is not classified as specific target organ toxicant, single exposure.

*Specific target organ systemic toxicity - repeated exposure*

The substance or mixture is not classified as specific target organ toxicant, repeated exposure.

*Aspiration hazard*

Regarding the available data the classification criteria are not fulfilled.

**Carcinogenicity**

IARC	No ingredient of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.
OSHA	No ingredient of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.
NTP	No ingredient of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.
ACGIH	No ingredient of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by ACGIH.

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**Further information**

Systemic effects:

Nausea, Vomiting, Stomach/intestinal disorders, Diarrhea, Changes in the blood count

Further data:

Therapeutically used substance.

Other dangerous properties can not be excluded.

This substance should be handled with particular care.

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**SECTION 12. Ecological information**

**Ecotoxicity**

*Toxicity to fish*

LC50 *Oncorhynchus mykiss* (rainbow trout): > 1,000 mg/l; 48 h (External MSDS)

**Persistence and degradability**

*Biodegradability*

0 %; 21 d

OECD Test Guideline 301C

Not readily biodegradable.

0 %; 14 d

OECD Test Guideline 302B

Not readily eliminated from water.

**Bioaccumulative potential**

*Partition coefficient: n-octanol/water*

log Pow: -0.89

(experimental)

(Lit.) Bioaccumulation is not expected (log Pow <1).

**Mobility in soil**

No information available.

**Other adverse effects**

*Additional ecological information*

Discharge into the environment must be avoided.

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**SECTION 13. Disposal considerations**

The information presented only applies to the material as supplied. The identification based on characteristic(s) or listing may not apply if the material has been used or otherwise contaminated. It is the responsibility of the waste generator to determine the toxicity and physical properties of the material generated to determine the proper waste identification and disposal methods in compliance with applicable regulations. Disposal should be in accordance with applicable regional, national and local laws and regulations.

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**SECTION 14. Transport information**

**Land transport (DOT)**

**UN number** UN 2811  
**Proper shipping name** TOXIC SOLID, ORGANIC, N.O.S. (5-FLUORO-2,4-DIHYDROXYPYRIMIDINE)  
**Class** 6.1  
**Packing group** III  
**Environmentally hazardous** --

**Air transport (IATA)**

**UN number** UN 2811  
**Proper shipping name** TOXIC SOLID, ORGANIC, N.O.S. (5-FLUORO-2,4-DIHYDROXYPYRIMIDINE)  
**Class** 6.1  
**Packing group** III  
**Environmentally hazardous** --  
**Special precautions for user** no

**Sea transport (IMDG)**

**UN number** UN 2811  
**Proper shipping name** TOXIC SOLID, ORGANIC, N.O.S. (5-FLUORO-2,4-DIHYDROXYPYRIMIDINE)  
**Class** 6.1  
**Packing group** III  
**Environmentally hazardous** --  
**Special precautions for user** yes  
**EmS** F-A S-A

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**SECTION 15. Regulatory information**

**United States of America**

**Canada**

**WHMIS Classification**

D1B Toxic Material Causing Immediate and Serious Toxic Effects

Toxic by ingestion

This product has been classified according to the hazard criteria of the CPR and the MSDS contains all of the information required by the CPR.



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**Notification status**

TSCA: On TSCA Inventory

DSL: This product contains one or several components listed in the  
Canadian NDSL.  
*Ingredients*  
5-fluorouracil

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**SECTION 16. Other information**

**Training advice**

Provide adequate information, instruction and training for operators.

**Full text of H-Statements referred to under sections 2 and 3.**

H301 Toxic if swallowed.  
H351 Suspected of causing cancer.

**Key or legend to abbreviations and acronyms used in the safety data sheet**

Used abbreviations and acronyms can be looked up at [www.wikipedia.org](http://www.wikipedia.org).

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The information contained herein is based on the present state of our knowledge. It characterizes the product with regard to appropriate safety precautions. It does not represent a warranty of any product properties and we assume no liability for any loss or injury which may result from the use of this information. Users should conduct their own investigations to determine the suitability of the information.

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