Section 1 - Product and Company Identification

1.1 Product identifiers

Product name: 5-Fluorouracil
Catalog code: sud-5fu
CAS number: 51-21-8

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

Identified use: Laboratory chemicals

Disclaimer: All InvivoGen products are supplied for research and laboratory use only. Not for drug, household or other uses.

1.3 Details of the supplier of the safety data sheet

InvivoGen USA, 3950 Sorrento Valley Blvd, Suite 100
San Diego, California 92121, USA
(+1) 888 457 5873

InvivoGen Europe, 5 rue Jean Rodier
31400 Toulouse, France
+33 (0) 5 62 71 69 39

InvivoGen Hong Kong, Unit 709A, Bio-Informatics Center
2 Science Park West Avenue, Hong Kong Science Park
Shatin, Hong Kong
+852 3622 3480

1.4 Emergency telephone number:

ORFILA (INRS): +33 (0)1 45 42 59 59

Section 2 – Hazards Identification

2.1 Classification of substance

Acute toxicity, Oral (Category 3), H301
Acute toxicity, Dermal (Category 4) H312
Acute toxicity, Inhalation (Category 4) H332
Germ cell mutagenicity (Category 1B), H340
Reproductive toxicity (Category 1B), H360

2.2 Label elements

Pictogram

Signal word Danger

Hazard statement(s)
H301 Toxic if swallowed.
H312 Harmful in contact with skin.
H332 Harmful if inhaled.
H340 May cause genetic defects.
H360 May damage fertility or the unborn child.

Precautionary statement(s)
P202 Do not handle until all safety precautions have been read and understood.
P281 Use personal protective equipment as required.
P301 + P312 IF SWALLOWED: Call a POISON CENTER or doctor/physician if you feel unwell.
P302 + P352 IF ON SKIN: Wash with plenty of soap and water.
P308 + P313 IF exposed or concerned: Get medical advice/attention.

2.3 Other hazards - none

Section 3 – Composition/Information on Ingredient

3.2 Mixture

<table>
<thead>
<tr>
<th>Ingredient</th>
<th>CAS no.</th>
<th>GHS Classification</th>
<th>Pictogram</th>
<th>Concentration</th>
</tr>
</thead>
<tbody>
<tr>
<td>5-Fluorouracil Synonyms: 5-FU, 2,4-Dihydroxy-5-fluoropyrimidine, 5-Fluoro-2,4(1H,3H)-pyrimidinedione Formula: C₄H₃FN₂O₂ Molecular weight: 130.1 g/mol</td>
<td>51-21-8</td>
<td>Acute toxicity, Oral (Cat. 3), H301 Acute toxicity, Dermal (Cat. 4), H312 Acute toxicity, Inhalation (Cat. 4), H332 Skin irritation (Cat. 2), H315 Eye irritation (Cat. 2A), H319 Germ cell mutagenicity (Cat. 1B), H340 Reproductive toxicity (Cat. 1B), H360</td>
<td></td>
<td>&gt;0.5 - &lt;2 % (w/v)</td>
</tr>
</tbody>
</table>

Section 4 – First Aid Measures

4.1 Description of first aid measures

General advice: Consult a physician. Show this safety data sheet to the doctor in attendance. Move out of dangerous area.
If inhaled: If breathed in, remove to fresh air. If not breathing, give artificial respiration. Consult a physician.
In case of skin contact: Wash skin with soap and plenty of water. Consult a physician.
In case of eye contact: Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician.
If swallowed: Do NOT induce vomiting. Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

4.2 Most important symptoms and effects, both acute and delayed
The most important known symptoms and effects are described in the labeling (see section 2.2) and/or in section 11

4.3 Indication of any immediate medical attention and special treatment needed
No data available

Section 5 – Fire Fighting Measures

5.1 Extinguishing media
Suitable extinguishing media: Use water spray, carbon dioxide, dry chemical powder or appropriate foam.

5.2 Specific hazards arising from the chemical
No data available

5.3 Special Firefighting Procedures
Wear self-contained breathing apparatus for fire fighting if necessary.
Section 6 – Accidental Release Measures

6.1 Personal precautions, protective equipment and emergency
Use personal protective equipment. Avoid breathing vapors, mist or gas. Ensure adequate ventilation. Remove all sources of ignition. Evacuate personnel to safe areas. Beware of vapors accumulating to form explosive concentrations. Vapors can accumulate in low areas.
For personal protection see section 8.

6.2 Environmental precautions
Prevent further leakage or spillage if safe to do so. Do not let product enter drains.

6.3 Methods and materials for containment and cleaning up
Contain spillage, and then collect with an electrically protected vacuum cleaner or by wet-brushing and place in container for disposal according to local regulations (see section 13).

6.4 Reference to other sections
For disposal see section 13.

Section 7 – Handling and Storage

7.1 Precautions for safe handling
Provide appropriate exhaust ventilation at places where dust is formed.
For precautions see section 2.2.

7.2 Conditions for safe storage, including any incompatibilities
Keep container tightly closed in a dry and well-ventilated place.
Recommended storage temperature: 15-25 °C (room temperature)

7.3 Specific end use(s)
Apart from the uses mentioned in section 1.2 no other specific uses are stipulated.

Section 8 – Exposure Controls/PPE

8.1 Control parameters
Components with workplace control parameters
Contains no substances with occupational exposure limit values.

8.2 Exposure controls
Appropriate engineering controls
General industrial hygiene practice.

Personal protective equipment
Eye/face protection
Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

Body Protection
Choose body protection in relation to its type, to the concentration and amount of dangerous substances, and to the specific workplace. The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

Skin protection
Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.
Respiratory protection
Respiratory protection is not required. Where protection from nuisance levels of dusts are desired, use type N95 (US) or type P1 (EN 143) dust masks. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

Control of environmental exposure
Do not let product enter drains.

Section 9 – Physical/Chemical Properties

9.1 Information on basic physical and chemical properties
Appearance
Physical state: Liquid
Color: Colorless
Safety Data
Odor: No data available
Odor threshold: No data available
pH: No data available
Melting point/freezing point: No data available
Initial boiling point and boiling range: No data available
Flash point: No data available
Evaporation rate: No data available
Flammability: No data available
Upper/lower flammability or explosive limits: No data available
Vapor pressure: No data available
Relative density: No data available
Solubility in water: No data available
Partition coefficient: n-octanol/water: No data available
Autoignition temperature: No data available
Decomposition temperature: No data available
Viscosity: No data available

9.2 Other safety information
no data available

Section 10 – Stability and Reactivity

10.1 Reactivity: No data available
10.2 Chemical stability: Stable under recommended storage conditions.
10.3 Possibility of hazardous reactions: No data available
10.4 Conditions to avoid: No data available
10.5 Incompatible materials: No data available
10.6 Hazardous decomposition products: No data available

Section 11 – Toxicological Information

11.1 Information on toxicological effects
Acute toxicity:
Oral LD50: No data available
Inhalation LC50: No data available
Dermal LD50: No data available
Other information on acute toxicity: No data available
Skin corrosion/irritation: No data available
Serious eye damage/irritation: No data available
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: This product is or contains a component that is not classifiable as to its carcinogenicity based on its IARC, ACGIH, NTP, or EPA classification.
IARC: 3 - Group 3: Not classifiable as to its carcinogenicity to humans (Fluorouracil)
ACGIH: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by ACGIH.
NTP: No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.
OSHA: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.
Reproductive toxicity:
Reproductive toxicity - mouse - Intraperitoneal
Effects on fertility: Post-implantation mortality (e.g. dead and/or resorbed implants per total number of implants).
Specific developmental abnormalities: Other developmental abnormalities.
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 - Intraperitoneal
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.
Developmental toxicity - rat - Intravenous
Specific developmental abnormalities: Musculoskeletal system.
Specific target organ toxicity - single exposure: no data available
Specific target organ toxicity - repeated exposure: no data available
Aspiration hazard: no data available
Additional information: RTECS: YR0350000

Section 12 – Ecological Information

12.1 Toxicity: No data available
12.2 Persistence and degradability: No data available
12.3 Bioaccumulative potential: No data available
12.4 Mobility in soil: No data available
12.5 Results of PBT and vPvB assessment: PBT/vPvB assessment not available as chemical safety assessment not required or not conducted.
12.6 Other adverse effects: No data available

Section 13 – Disposal Considerations

13.1 Waste treatment methods
Product: Observe all federal, state and local environmental regulations. Contact a licensed professional waste disposal service to dispose of this material. Must not be disposed of together with household garbage.
Contaminated Packaging: Dispose of as unused product.

Section 14 – Transport Information

14.1 UN number
ADR/RID: 2811
DOT (US): 2811
IMDG: 2811
IATA: 2811

14.2 UN proper shipping name
Toxic solids, organic, n.o.s. (5-Fluorouracil)

14.3 Transport hazard class(es)
ADR/RID: 6.1
DOT (US): 6.1
IMDG: 6.1
IATA: 6.1
Section 15 – Regulatory Information

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture
WARNING: This product contains a chemical known to the State of California to cause birth defects or other reproductive harm. Fluorouracil

15.2 Chemical Safety Assessment
no data available

Section 16 – Other Information

The information contained in this SDS relates only to the material(s) designated and does not relate to use(s) in combination with any other material, process(es) and/or chemical reaction(s). InvivoGen provides this information in good faith and is based on our present knowledge. This SDS is provided without warranty of any kind. The recipient is responsible for ensuring that, where applicable, existing laws and guidelines are observed.