Chemical Safety Practices Recommendations
5-Fluorouracil (5-FU)

Exposure Hazards (1)

Toxic if Swallowed

Response to Exposure

Oral	Dermal	Inhalation	Injection
Rinse mouth; do not induce vomiting. Report to OHS.	Wash skin with soap and water for 15 minutes. Rinse eyes for 15 minutes. Report to OHS.	Leave area; go to clean air. Report to OHS.	Report to OHS.

Special Precautions	Pregnant or breastfeeding women should be careful when working with 5-FU. (2) Discard garments as hazardous if contaminated with 5-FU.
Personal Protective Equipment	Gloves (Double glove) (Latex or Nitrile) Skin Protection (Suit or Scrubs or Lab Coat) Eye Protection (Safety-glasses or Goggles) Closed-toe shoes Use N100 respirator if engineering controls are not available.
Engineering Controls	5-FU powder- Chemical Fume Hood (CFH) (3) 5-FU solution- CFH or Biosafety Cabinet (Class II, B2 BSC if aerosolized) Animal waste and bedding until 1 day after last treatment- CFH or Class II, B2 BSC  (4)
Animal Handling	Avoid exposure to animal urine until one day after last treatment. (5)
Bedding Disposal	Dispose of bedding as hazardous material until one day after last treatment.
Work Practices	Empty 5-FU containers and unused 5-FU must be disposed of as hazardous. Follow LASP SOPs for preparation, handling, dosing, and disposal of 5-FU.

References:

1. 5-FU MSDS [Internet]. Sigma Aldrich. 2014 [cited 12/30/2014]. Available from: http://www.sigmaaldrich.com/united-states.html.
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4. Mukherjee KL, Heidelberger C. Studies on fluorinated pyrimidines. IX. The degradation of 5-fluorouracil-6-C14. The Journal of biological chemistry. 1960;235:433-7.
5. Yuki M, Sekine S, Takase K, Ishida T, Sessink PJ. Exposure of family members to antineoplastic drugs via excreta of treated cancer patients. Journal of oncology pharmacy practice : official publication of the International Society of Oncology Pharmacy Practitioners. 2013;19(3):208-17.

Questions or concerns: Please contact EHS, Ted Witte, theodore.witte@nih.gov or 301-846-5860

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Chemical Safety Practices Recommendations
5-Fluorouracil (5-FU)

5-FU is a pyrimidine analogue anti-neoplastic drug in use since 1962. Unlike agents such as Cisplatin which directly damage DNA, it works by inhibiting the synthesis of new DNA. Once administered it is rapidly activated to the active metabolites or degraded and cleared in the urine. A small but significant portion of active 5-FU is excreted in the urine for several hours after dosing and 5-FU can be detected in home caretakers of patients treated with 5-FU.

As an anti-neoplastic drug it poses some risk to fertility and unborn or developing children and is FDA Pregnancy Category D, which means that it may harm the fetus/child but the benefits of use may outweigh the risk.

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