Risk Assessment Form (3)

Must be completed before experimentation.

Student's Name(s) Katherine Zhang

Title of Project Dialdehyde Cellulose Nanocrystal Hydrogel Synthesis for Antibiotic Remediation

To be completed by the Student Researcher(s) in collaboration with Designated Supervisor/Qualified Scientist:
(All questions must be answered; additional page(s) may be attached.)

1. List all hazardous chemicals, activities, or devices that will be used; identify microorganisms exempt from pre-approval (see Potentially Hazardous Biological Agent rules).

   Cellulose nanocrystals (CNC; Process Development at the University of Maine, USA); sodium periodate (Alfa Aesar); doxycycline hydrochloride (Doxy; Fisher Scientific); sodium alginate (Sigma Aldrich); HCl (Sigma Aldrich); NaOH (Sigma Aldrich)

2. Identify and assess the risks involved in this project.

   CNC: no adverse health effects expected, ingestion may cause gastro-intestinal upset; Sodium periodate: causes eye/skin irritation, harmful if absorbed through the skin, harmful if swallowed, may cause irritation of the digestive tract, may cause kidney damage, harmful if inhaled; Doxy: may cause eye/skin/digestive tract/respiratory tract irritation, may cause bone structure abnormalities, may produce nervous system disturbances, may cause damage to blood forming tissues, adverse reproductive effects; Sodium alginate: Low order of toxicity; HCl: corrosive, may produce burns, may cause mucous membrane damage; NaOH: strongly irritating and corrosive, can cause burns and damage to any tissues it comes into contact with.

3. Describe the safety precautions and procedures that will be used to reduce the risks.

   Wear protective gloves/protective clothing/eye protection, keep away from hot surfaces, do not breathe dust/ fume/gas/mist/vapors, wash hands and any exposed skin thoroughly after handling. When working with small particles, work under fume hood and disposable face mask.

4. Describe the disposal procedures that will be used (when applicable).

   All chemical wastes will be disposed in labeled containers to a designated location in the lab as hazardous waste. Hazardous waste pickups will be requested by emailing HazWaste@stonybrook.edu

5. List the source(s) of safety information.

   https://umaine.edu/pdc/wp-content/uploads/sites/398/2017/09/SDS-CNC-rev0517.pdf
   https://www.alfa.com/en/msds/?language=EN&subformat=AGHS&sku=13798
   https://fscimage.fishersci.com/msds/91533.htm
   https://www.sigmaaldrich.com/MSDS/MSDS/DisplayMSDSPage.docountry=US&language=en&productNumber=PHR1471&brand=SIAL&PageToGoToURL=https%3A%2F%2Fwww.sigmaaldrich.com%2Fcatalog%2Fproduct%2Fsial%2Fphr1471%3Flang%3Den
   http://sds.chemtel.net/webclients/safariland/finished_goods/Pioneer%20Forensics%20-%20PF021%20%20PF022%20%20Hydrochloric%20Acid.pdf
   https://www.atsdr.cdc.gov/MMG/MMG.asp?id=246&tid=45
   https://www.stonybrook.edu/commcms/environmental-health-and-safety/programs/healthcaresafety/environmentalprotection/waste-disposal

To be completed and signed by the Designated Supervisor (or Qualified Scientist, when applicable):
I agree with the risk assessment and safety precautions and procedures described above. I certify that I have reviewed the Research Plan/Project Summary and will provide direct supervision.

Xiangyu Huang	Xiangyu Huang (Digitally signed by Xiangyu Huang Date: 2019.06.01 15:32:00 -07'00')	06/01/19
Designated Supervisor's Printed Name	Signature	Date of Review (mm/dd/yy)

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Position & Institution	Phone or email contact information

Bachelor Degree in Materials Science

Experience/Training as relates to the student's area of research