



Institutional Animal Care and Use Committee

## Policy on Non-Pharmaceutical-Grade Substances and Compounds

### Regulations:

USDA Policy 3.2 states, Pharmaceutical-grade substances are expected to be used, including acute procedures. No non-pharmaceutical-grade chemicals may be used in research animals if a pharmaceutical-grade substance or compound is available through human or veterinary suppliers. Cost savings alone is not sufficient justification for the use of non-pharmaceutical-grade substances, but may be given consideration by the IACUC if pharmaceutical-grade substances have limited availability. This includes but is not limited to, compounds, medications, drugs, vehicles, and diluents. Non-pharmaceutical-grade substances should only be used in animals after specific review and approval by the IACUC.

A pharmaceutical-grade substance is any active or inactive drug, biologic or reagent, for which a chemical purity standard has been established by a recognized national or regional pharmacopeia, etc., manufactured under Good Manufacturing Practices (GMP) which is approved, conditionally approved, or indexed by the Food and Drug Administration (FDA) or for which a chemical purity standard has been written or established by a recognized compendia (e.g., United States Pharmacopeia-National Formulary (USP\_NF), British Pharmacopeia (BP). When using a pharmaceutical-grade substance that is not in its original form it is considered an altered drug and its use will have to be explained, along with the process and how the appropriate preparation and administration of the compound will be guaranteed.

For all species, any non-pharmaceutical-grade chemical agents administered in survival and non-survival studies, and animal experimentation, must meet quality control and assurance standards. The following are examples of procedures on how to prepare the compounds to insure sterility of the final product:

- All manipulations must occur in sterile vessels using sterile instruments (spatulas, syringes/needles, dosing vials, etc.). Work should be carried out in a biosafety cabinet or chemical fume hood to reduce contamination of the area.
- The drug must be reconstituted with sterile diluents (e.g., water, Phosphate Buffered Saline, DMSO, ethanol, oil) prepared by filtration through a 0.2 micron filter or by autoclaving according to the instructions provided by the manufacturer of the reagent-grade chemical.
- The final solution should be adjusted so that it has a pH value of between 4 and 9.5.
- After thorough mixing, the solution must be filtered into a sterile vial through a 0.2 micron filter to ensure removal of bacteria and other contaminants.
- The vial must be labeled with the drug name, concentration of the solution, the date of compounding and the expiration date (as suggested by manufacturer or for a maximum of 6 months). Any solution remaining after six months must be discarded and not used in laboratory animals. If the "shelf life" is not obtainable, it is recommended that the drug solution be freshly re-prepared each day it is used.
- The solution must be handled in a manner to ensure continued sterility of the contents.
- Once prepared, proper storage of the compound must be maintained to necessitate its viability
- Regardless of age, solutions should be discarded if changes in color and/or precipitation occur.

**Policy on the Use and Preparation of Non-Pharmaceutical-Grade Substances and Compounds**  
**IACUC Approved 05-18-18**

The IACUC is responsible for evaluating the potential adverse consequences of non-pharmaceutical-grade substances when used for research. The following standards must be addressed in the IACUC Application for Use of Vertebrate Animals (AUVA), by providing a written standard operating procedure (SOP) for each non-pharmaceutical-grade compound used in the research study.

**Substance/Compound Name:**

**Substance/Compound Obtained from:**

**Compounding Recipe/Instructions:**

- **Ingredients:**
- **Preparation:**
- **Sterility**
- **Storage/Stability:**
- **Dosing (site and route of administration):**
- **Expiration Date/Shelf Life:**

**Cautions:**

- **Side Effects or Adverse Reactions:**

**Note:** Do not administer non-sterile solutions, outdated solutions, more concentrated solutions, or higher doses than stated above.

## **References**

John Hopkins University ACUC Policy on Use of Non-Pharmaceutical-Grade Substances in Laboratory Animals

Washington College IACUC SOP Preparation of Sterile Non-Pharmaceutical-Grade Compounds