

**University of Colorado at Boulder**  
**Office of Research Integrity**  
**Institutional Animal Care and Use Committee**  
**SOP #16**  
**Title: Relative Humidity**

**PURPOSE**

Provide a plan for addressing relative humidity that is outside the Guide accepted range of 30%-70%. In the Colorado climate relative humidity is often below 30%. In the summer months, relative humidity within micro-isolator cages can be above 70%.

**DEFINITIONS**

Relative humidity: ratio of partial pressure of water vapor in an air-water mixture to the saturated vapor pressure of water at a prescribed temperature. Relative humidity of air depends not only on temperature but also on the pressure of the system of interest.

**BACKGROUND**

The humidity levels in multiple animal housing rooms in the UCB animal facilities do not always fall within the acceptable range of 30% to 70% relative humidity specified in the Guide. Humidity extremes may impact animal health, food quality, or negatively impact other aspects of the physical environment. High humidity may increase the prevalence of pneumonia, lead to excessive mold growth in the rooms, and spoiling of feed. Low humidity can cause ring tail in some strains of rats and mice. In order to address low humidity overall and high humidity during the summer months in some rooms, the following will be conducted:

- There will be quarterly checks of the environment inside the cages to show the actual humidity the animal is exposed to in addition to the macro environment.
- During daily health checks, clinical assessments, and the sentinel program, there will be regular checks for ringtail and ischemic necrosis of the tail and toes, flaky skin, ecdysis (molting) difficulties in reptiles, desiccation stress in semiaquatic amphibians, and preweaning mortality<sup>1</sup>.
- Data will be collected quarterly for ambient minimum and maximum humidity values compared over time to the humidity levels in several rooms.
- The data will help determine if it is possible to ensure the levels of the humidity in the OAR vivarium facilities will consistently meet *Guide* standards. A formal exception from the IACUC along with this SOP was requested and approved by the IACUC on July 29, 2013. The status of this issue will be revisited at each semi-annual inspections and program review, and reported on the semi-annual reports as a departure from the *Guide* unless it can be resolved. The issue will be researched and further humidity data will be collected to determine if further action is required.
- Training will be provided for the husbandry staff on identifying mold growth in food and bedding.

**REFERENCES:** Guide for the Care and Use of Laboratory Animals, 8<sup>th</sup> edition.

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<sup>1</sup> The Guide for the Care and Use of Laboratory Animals, Page 45