Information Resources for Animal Facility Sanitation and Cage Wash

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Prepared for USUHS Lab Animal Medicine Residency Program
CMO 504
Facility Sanitation Program

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Disclaimers
MANAGEMENT

Corey, M.; Davey, R.; Faith, R.E. Case Study: Automated Cagewash Design at Baylor College of Medicine. Lab Animal

Descriptors: animal housing; materials; laboratories.


NAL Call Number: QL55.A1L33
Descriptors: laboratory animals; facilities; design; management; cages; washers; maintenance; operations; energy conservation.


NAL call no.: QL55.A1L33
Descriptors: laboratories; floors; design.


NAL call no.: QL55.A1L33
Descriptors: laboratory animals; animal housing; laboratory rearing; design; finishes; resins; floors; floor type; walls; ceilings.


Descriptors: computer system; housing experimental animal; information processing; practice guideline; health care facility; data base; computer program; computer terminal; laboratory personnel; documentation; control system; animal welfare; breeding; storage; cost benefit analysis; calculation; automation; management; nonhuman; mouse; rat; animal experiment; controlled study.


Descriptors: laboratory animal; environmental management; breeding machine and tool; rearing box; microorganism contamination; prevention of pollution; cleaning device; air cleaning; dust; indoor air pollution; dung processing machine; automatic control; waste water treatment; research and development; water intake (organism); laboratory organism; organism; management; rearing facilities; pollution; environmental pollution control; countermeasure; preclusion (protection); equipment; cleaning (purification); pollutant; matter; environmental pollution; processing equipment; control; sewage treatment; water and sewage treatment; treatment; development; feeding (food intake); animal behavior.


NAL Call Number: QL55.A1L33
Descriptors: laboratory animals; animal housing; laboratory rearing; design; cleaning and sterilization; cleaning equipment; cages.


NAL Call Number: QL55.A1L33
Descriptors: laboratory workers; laboratory animals; cages; washing; animal wastes; litter; ergonomics; safety at work; cost analysis; labor costs; productivity; automation; decision making.


NAL Call Number: QL55.A1L33
Descriptors: laboratories; laboratory animals; laboratory workers; cages; washing; power washers; automation; vacuum; robots; cleaning and sterilization; animal wastes; litter; dust control; labor productivity; occupational hazards; planning; design.


NAL Call Number: QL55.A1L33
Descriptors: laboratory animals; animal housing; cages; cleaning and sterilization; design; decontamination; work flow; equipment.

VENTILATION and AIR QUALITY

Descriptors: air pollutants, occupational analysis; indoor air pollution; allergens analysis; ammonia analysis; laboratory animals; hydrocarbons analysis; mice; animal technicians; occupational Exposure, prevention and control; ventilation.


Descriptors: airborne allergens; air UV germicidal irradiation, air treatment method; air filtration, air treatment method; dilution ventilation, air treatment method; pressurization, air treatment method.


Descriptors: indoor air pollution analysis; allergens analysis; allergens urine; evaluation studies; health surveys; methods; mice; mice, inbred BALB C; rats; rats, Sprague-Dawley; Sweden.


Descriptors: indoor air pollution analysis; allergens analysis; allergens urine; evaluation studies; health surveys; methods; mice; mice, inbred BALB C; rats; rats, Sprague-Dawley; Sweden.


Descriptors: air conditioning; air sampling; animal care facility; bacteria carrying particle; bacterial toxins; cage washing; endotoxin; endotoxin carrying particle; miscellaneous method; organic dust dispersal; pollution; ventilation.


NAL Call Number: 290.9 Am32P

Descriptors: air quality; cages; ventilation.

HEALTH, SAFETY, and ERGONOMICS


Descriptors: asthma, immune system disease; respiratory system disease; atopy, immune system disease; laboratory animal allergy, allergy skin testing, diagnostic method; laminar flow caging, laboratory equipment; wet washings.


NAL Call Number: QL55.A1L33

Descriptors: laboratory animals; laboratories; noise abatement; acoustic properties; power washers; cages; panels; cost analysis; noise pollution; laboratory workers; laboratory hazards; occupational health; animal welfare, animal use refinement.


Descriptors: laboratory animals; containment of biohazards, instrumentation; animal housing; ventilation; air pollutants, occupational; air pressure; laboratory animals, microbiology; communicable disease control; environmental monitoring; animal housing, legislation and jurisprudence; lighting; mice; sound.


Descriptors: air pollutants, occupational analysis; allergens analysis; laboratory animals, immunology; asthma immunology; immunoglobulin E immunology; laboratory personnel; occupational diseases immunology; adult; occupational air pollutants, adverse effects; allergens adverse effects; asthma diagnosis; asthma physiopathology; bronchial hyperreactivity immunology; bronchial provocation tests; dose-response relationship, immunologic; occupational diseases diagnosis; occupational diseases physiopathology; radioallergosorbent test; rats; rats, Sprague-Dawley immunology; skin tests.


NAL Call Number: RB152.J6

Descriptors: carcinogens analysis; detergents; animal housing; surface active agents; 9,10-Dimethyl-1,2-benzanthracene analysis; aflatoxin-B1; aflatoxins analysis; chemistry; chromatography; high-pressure-liquid.

Descriptors: allergens; asthma prevention and control; animal housing; occupational exposure, prevention and control; ventilation; alpha-globulins immunology; containment of biohazards methods; laboratory animal science instrumentation; mice.


Descriptors: humans; laboratory workers; laboratory work; rodents; biochemical analysis; dust analysis; occupational exposure; air sampling; exposure levels; airborne particles; laboratory animals.


Descriptors: indoor air pollution, prevention and control; allergens, urine; laboratory animal science methods; air analysis; allergens analysis; asthma immunology; asthma prevention and control; hypersensitivity immunology; hypersensitivity prevention and control; laboratory animal science instrumentation; laboratory personnel; occupational diseases immunology; occupational diseases prevention and control; population density; rats; rats, inbred strains.


Descriptors: air pollutants, occupational analysis; allergens analysis; animal technicians; laboratory animals; hypersensitivity prevention and control; occupational air pollutants, adverse effects; allergens, adverse effects; animal husbandry instrumentation; hypersensitivity etiology; mice; rats; safety; ventilation.


Descriptors: environmental air pollutants analysis; allergens analysis; mice immunology; rats immunology; Allergens, urine; detergents pharmacology; immunoassay; rabbits.


**CLEANING and STERILIZATION**


Descriptors: laboratory animals; animal housing; monitoring; cleaning and sterilization; plate count; rapid methods; atp; detection; luminescence; correlation; cost analysis.


Descriptors: laboratory equipment; microbial contamination; cleaning and sterilization; storage; duration; animal experiments.


Descriptors: cages; rodents; robots; washing; waste treatment.


Descriptors: laboratory animals; animals, local anti-infective agents, pharmacology; decontamination methods; animal housing; hydrogen peroxide pharmacology; ventilation; Bacillus stearothermophilus isolation and purification; heat; laboratories; volatilization. M


Descriptors: eye injury epidemiology; nose irritation epidemiology; risk assessment; occupational exposure; rubber industry; laundry; textile industry; occupational hazard; carcinogenicity; human; nonhuman.


Descriptors: amines pharmacology; bacteriological techniques; clostridium, drug effects; cyclohexanes pharmacology; heart; morpholines pharmacology; oxazines pharmacology; clostridium, growth and development; culture media.


Descriptors: feeds; contamination; litter; air; animal housing; digestive tract; laboratory animals

Cryptococcus uniguttulatus.


Descriptors: amines; gases; maintenance and engineering, hospital; steam; sterilization.


Descriptors: boiler; indoor air pollution air sampling; article; environmental exposure; humidifier; United States; volatilization.


Descriptors: laboratory animals; fumigation; ozone pharmacology; sanitation; Bacillus, drug effects; dogs; animal housing; mice; rabbits; rats; spores, drug effects; sterilization methods.


Descriptors: Adenoviridae physiology; Adenoviridae infections, prevention and control; containment of biohazards methods; disinfection methods; animal housing; animal husbandry; genetic vectors physiology; Rodentia.


Descriptors: laboratory animals; animal housing; monitoring; cleaning and sterilization; plate count; rapid methods; atp; detection; luminescence; correlation; cost analysis.


NAL Call Number: QL55.A1L33

Descriptors: laboratory equipment; microbial contamination; cleaning and sterilization; storage; duration; animal experiments.
Descriptors: rats; mice; laboratories; fumigation; gnotobiotic animals; sterilizing; methyl bromide; monitoring; specific pathogen free laboratories.


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NTIS Prices: PC A02/MF A01

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Descriptors: animal enclosures; coatings; animals; phosphoric acid; stainless steels; testing; powder coatings.


Descriptors: laboratory animals; anti-infective agents; bacteria; animal housing; infection control methods; temperature; time factors.


Descriptors: animal housing; sanitation standards; temperature; thermometers.

CAGE CLEANING and ANIMAL HEALTH / BEHAVIOR EFFECTS


NAL Call Number: QL55.15

Descriptors: rats; laboratory animals; litter; cleaning; frequency; ventilation; ammonia; air flow; epithelium; nose; respiratory system; membrane potential; cilia; activity.


NAL Call Number: QL55.A1L33

Descriptors: rabbits; laboratory animals; appetite; feed intake; feed dispensers; pelleted feeds; alfalfa meal; anorexia; animal husbandry; cage cleaning.


NAL Call Number: SF405.5.A23

Descriptors: rats; laboratory mammals; animal husbandry; cleaning; blood pressure; heart rate; telemetry; data collection; physical activity; animal behavior; duration; frequency; fearfulness; stress, arousal behavior.


NAL Call Number: 410.9 P94

Descriptors: sanitation; animal feed.


NAL call no.: 410 B77

Descriptors: mice; aggressive behavior; cages; cleaning; odors; male animals


NAL Call Number: HV4701.A557

Descriptors: mice; aggressive behavior; cages; cleaning; odors; male animals

Descriptors: animal welfare; laboratory animals; arousal; noise; social environment; calithrix; cats; circadian rhythm; ferrets; loudness perception; mice; pitch perception; psychoacoustics; rabbits; rats; sound spectrography; species specificity; ultrasonics.


Descriptors: behavior; biosynchronization; physiology; sense organs (sensory reception);

Cricetidae; Rodentia; Syrian hamster; cage cleaning; lighting conditions; phase response curve.


NAL call no.: QL55.A1L3

Descriptors: liveweight gain; bites; mice; laboratory mammals; cages; animal husbandry; air pollution; ammonia; carbon dioxide; animal health; artificial ventilation; reproductive performance; weaning weight; blood plasma; corticosterone; relative humidity; air temperature; litter size; mortality; nose; epithelium; histopathology; lesions; growth curve; leukocyte count;


NAL call no.: QL55.A1L3

Descriptors: rats; activity sampling; diurnal activity; animal husbandry


Descriptors: animal welfare; laboratory animal environment; laboratory noise; sound sources.


NAL Call Number: QL55.A1L3

Descriptors: laboratory animals; animal experiments; animal welfare; animal housing; laboratories; ultrasound; environment.

SELECTED WORLD WIDE WEBSITES

NOTE: Web site addresses and content are subject to change.

Biosafety in Biomedical and Microbiological Laboratories
http://bmbl.od.nih.gov/contents.htm

Cage Wash Caustic Odor Exhaust. A Case Study.

Cleaning Mickey’s Mess—How do you clean house for 130,000 mice? Article on cage cleaning robots.
http://www.emory.edu/WHSC/HSNEWS/PUB/Momentum/Spring02/lastword.html

Detach Robotic Cage Wash System (Steris Corporation USA)—The system utilizes robots, one at each end of the cage washer. The robot with its interchangeable mechanical gripper is programmed to handle different cage types, baskets containing bottles or cage lids, and the pallets on which the cages are transported.
http://www.steris.com/

IWT Cage and Rack Washers, Cabinet Washers, Bottle Washers and Fillers, Kronos, Tunnel Washers [IWT is part of the Techniplast Group]
http://www.iwtsrl.it/prodotti_ing.htm

Lab Animal Buyers’ Guide–Husbandry
http://guide.labanimal.com/guide/product2.jsp?a=4

NIH Policies Related to Occupational Safety and Health in the Care and Use Laboratory Animals
http://oacu.od.nih.gov/safety/program_sum.htm

Pharmacal Research Laboratories Alkaline Detergents, Urine Scale Removers, Disinfectants, Neutralizers-Floor Cleaners -Foam Boosters -Deodorants, Antimicrobial Skin Care, Monitoring Products, Material Safety Data Sheets, Automatic Chemical Dispensing Systems for Rack, Tunnel and Bottle Washing Machines, Drum Handling Equipment, Spill Containment Pallets

http://www.roebiomed.com/

Steris Cage and Rack Washing Cleaners, Cage and Rack Washing-Bedding Equipment, Chemical Indicators, Biological Indicators

http://www.steris.com/

Tecniplast Washing Division Introduces Kronos Bottle Automation Technologies

http://www.tecniplastusa.com/kronos/bottlewash.html

Techniplast Waste Disposal and Cage Changing Units

http://www.tecniplast.it/laminar.htm

SANITATION SOPS

University of California at Irvine--Changing Animals in a Hood

http://www.rgs.uci.edu/as/vicha.htm

University of California at San Francisco--Occupational Health and Safety in the Care and Use of Research Animals

http://www.iacuc.ucsf.edu/Safe/OHSpdf.pdf

University of Colorado Health Sciences Center (UCHSC)

http://www.uchsc.edu/animal/index%20of%20sops%20for%20facility%20sanitation%20and%20operation.htm

University of Nebraska at Lincoln--Animal Maintenance and Management

http://www.unl.edu/research/ReComp/IACUC/mntmgmt.htm

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Updated September 4, 2003