Agent Summary Sheet

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Agent: MPTP (1-methyl-4-phenyl-1,2,3,6-tetrahydropyridine)

MPTP is a neurotoxic chemical that can induce permanent Parkinson’s-like disease in exposed people or nonhuman primates. It is used in rodents and nonhuman primates as a means of inducing Parkinson’s-like disease experimentally for research on the disease.

Potential Hazard: MPTP may enter the body through the skin by injection, by inhalation of vapors or particles in the air, and by ingestion. Urine is the major route of excretion of MPTP and its metabolites from monkeys. Following exposure, degeneration of specific cells in the brain results in permanent movement disorders (motor dysfunction). Disease is characterized by a lack of facial expression, stooped posture, slowness of movement, rigidity, and sometimes a characteristic tremor.

Recommended Precautions:
1. All personnel working with or around MPTP should be aware that this product may enter the body via absorption through the eyes or skin, injection, inhalation of vapors or powders, and by ingestion.
2. Eating, drinking, smoking, application of cosmetics or lip balm, or insertion of contact lenses are not permitted.
3. Door to the animal room is to be kept closed.
4. The room must be under negative pressure with respect to the corridor.
5. Notify the principal investigator (PI) and the Environmental Health and Safety Office (EHSO; 7-5688) in the event of spills.
6. All procedures should be done in a way to minimize creation of aerosols.
7. Animals injected with MPTP will be maintained in areas isolated from the general animal colony. Access to these animal areas, especially during the first 72 hours following the injection of MPTP, will be limited to the minimum number of personnel, and only to personnel who are adequately apprised of the potential dangers of MPTP and of the necessary safety precautions.
8. Protective clothing required for animal caretakers and other personnel who work in these areas during periods the MPTP or its metabolites are likely to be in the excreta or treated animals (first 72 hours after administration) will include:
   a. disposable water-repellant coveralls
   b. double latex gloves that cover the wrists of the coveralls
      - If working in potentially contaminated areas for long periods of time, the outer layer of latex gloves should be changed frequently.
   c. head covers
   d. foot covers
   e. eye goggles
   f. approved respirators
9. Only persons that have been fitted with an approved respirator, have maintained the respirator properly, and have received respirator use training by the Chemical Safety officer of the EHSO will be given access to rooms with exposed animals.
10. After completion of work in potentially contaminated areas, all protective clothing should be removed and place in the biohazard bag for prompt incineration. Following removal and bagging of protective clothing, all exposed areas of the skin (hands, face and neck) should be thoroughly washed.
11. Standard animal protective clothing can be used after injected animals have fully metabolized the MPTP (72 hours post injection).
12. Since aerosols of MPTP or its metabolites may be generated from bedding, excreta or the animal’s hair coat, special precautions should be taken during cage cleaning activities to reduce the creation of aerosols. For monkeys, the following procedures should be done to accomplish this:
   a. Remove the drop pan from the cage.
   b. Cover the floor under the cage with a plastic garbage bag.
   c. Cover the plastic bag with plastic-backed absorbent pads (chucks)
   d. Change the chucks as needed.
   e. To wash the empty cage, reinstall the clean drop pan and transport the cage to the cage wash room.
   f. Wash with detergent under acid cycle. Sodium hypochlorite (bleach) will also inactivate MPTP.

13. Rooms housing animals exposed to MPTP within the past 72 hours will be identified by a prominently displayed “Toxic Chemical” sign.

References:


