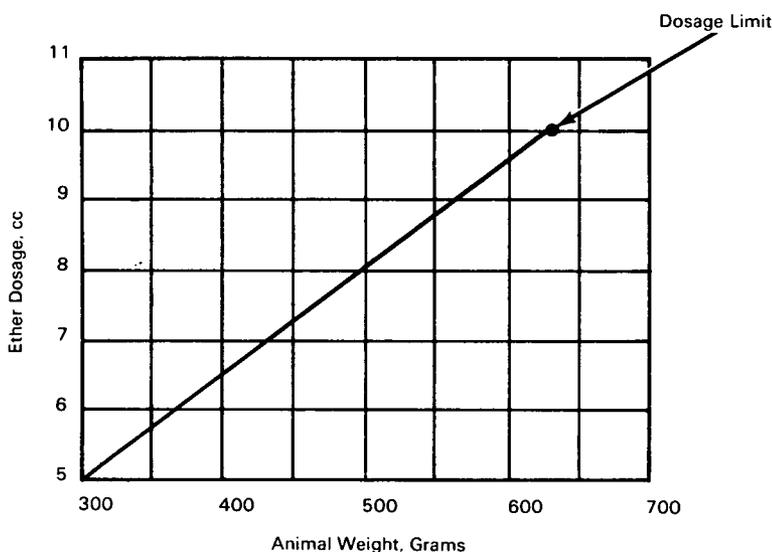


NASA TECH BRIEF



NASA Tech Briefs are issued by the Technology Utilization Division to summarize specific technical innovations derived from the space program. Copies are available to the public from the Clearinghouse for Federal Scientific and Technical Information, Springfield, Virginia, 22151.

Test Monkeys Anesthetized by Routine Procedure



The Problem: The safe handling of untrained squirrel monkeys used as subjects for physiological testing required the development of a rapid procedure of placing them under general anesthesia for a pre-determined period (approximately five minutes), so that they could be properly positioned on test couches and fitted with electrodes or other devices prior to the tests. It was also important to ensure that the procedure would not jeopardize the lives of the animals or influence their subsequent response to the test conditions.

The solution: The test animals can be safely anesthetized for a period of approximately five minutes by confining them for less than six minutes in enclosures containing a controlled volume of ether.

How it's done: Each test animal is enclosed in a 450-cubic-inch box together with a pad of gauze impregnated with a volume of ether proportional to the weight of the animal up to a limiting weight of approximately 630 grams. The volume of ether in cc as a function of animal weight, W , in grams, over the range of 300 to 630 grams, was found to be: $V = 0.015W + 0.5$. In no case should the volume of ether placed in the anesthesia box exceed 10 cc, even though the animal weighs more than 630 grams, and no animal should be allowed to remain in the box with ether for more than six minutes.

When the above procedure is strictly followed, animals removed from the box will remain unconscious for approximately 5 minutes and recover fully from the initial dosage of anesthetic within 30 to 35 minutes.

(continued overleaf)

Notes:

1. The anesthesia box must be purged of residual vapors and ventilated with fresh air before a new test animal is placed into it.
2. Ether is a highly volatile, flammable fluid and its vapors can form explosive mixtures with air. The safety rules prescribed for storing and handling this fluid should be strictly followed.

3. Inquiries concerning this innovation may be directed to:

Technology Utilization Officer
NASA Headquarters
Code ATU
Washington, D.C., 20546
Reference: B65-10332

Patent status: NASA encourages commercial use of this innovation. No patent action is contemplated by NASA.

Source: Space/Defense Corporation
under contract to
NASA Headquarters
(HQ-18)