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STANDARD NORWAY RAT/ROOF RAT ACUTE LIQUID BAIT

LABORATORY TEST METHOD

OPP Designation: 1.207 (2-25-74)

1. Scope

1.1 This method is designed to assess effectiveness of products used in acute liquid bait rodenticides used to control Norway rats and roof rats. This method is applicable in connection with registration and enforcement procedures under the Federal Insecticide, Fungicide, and Rodenticide Act, as amended.

2. Test Animals

2.1 All rats used in this test shall be Norway rats (Rattus norvegicus), wild-type (wild-caught or from a wild-type Norway rat colony) or albinos (Wistar strain preferred), or wild-type roof rats (R. rattus). Subjects shall be healthy, active, sexually mature, and fall within the following weight classes in grams within seven days prior to start of test:

	Minimum	Maximum	Maximum acceptable differences in average weights between sexes
Laboratory rats	150	300	50
Norway rats	150	400	65

Animals shall be weighed no more than three days before the start of the bait-exposure phase of the study. Animals that survive the study shall be weighed again at the end of the post-exposure follow-up period. Animals dying during the study shall be weighed when they are found dead.

2.2 Ectoparasite control with registered insecticide (or acaricide) products labeled for use on laboratory rats is permissible if applied externally to both test and control animals not less than seven days prior to start of test, if applied at rates not exceeding those permitted by the registered label, and if the pesticide used is not known or believed to potentiate the effects of anticoagulant rodenticides.

3. Apparatus

3.1 Rats shall be placed in solid-bottom all-metal cages designed to hold laboratory rats and having a bottom surface area of 500 to 2,000 cm^2 (0.538 to 2.15 ft^2).

3.2 Metal or ceramic feeders designed so that test rats may not nestle or wallow in diet, should be used.

3.3 Graduated 100-ml no-drip waterers fitted with ball-type watering tube, should be used. Automatic or open-cup type waterers are not recommended.

4. Pretest Holding Conditions

4.1 All rats used in this test method must be held, sexes separate, for observation in the laboratory for a period of at least one and not more than four weeks prior to testing. During the last seven days of this period rats shall be held under laboratory conditions (i.e., temperature, humidity, lighting, etc.) comparable to those of the animal testing room if not actually in the testing room. The test animals must not be fasted prior to testing. Water (3.4) and a commercial rat diet must be available to them at all times.

5. Holding and Test Conditions

5.1	Temperature	20 to 25 C. Strong air currents from heaters or air conditioners shall not blow directly onto test animals.
	Relative humidity	50 to 55%.
	Light	12 h artificial light per day, not to exceed 2153 lx (200 ft candles) at cage location. Total reversing of the natural photoperiods of the test animals by timed lighting is not recommended.

6. Procedure

6.1 A test group consists of a minimum of 20 rats (10 males, 10 females), individually caged. For each series of tests conducted at the same time on the same species, include one untreated control group of 20 rats (10 males, 10 females). Acclimate all animals to test conditions for three days prior to exposure to toxicant, immediately following pretest holding period (4.1).

6.2 Provide each cage with one or two feeders filled daily with a commercially available laboratory rat diet. Provide at least 40 grams of feed per animal per day.

6.3 Provide each cage with two 100-ml graduated no-drip waterers (3.4). Fill one waterer with tap water and the other with with the test liquid bait formulation diluted with tap water according to the mixing directions on the product's label. This procedure should provide each subject with access to amounts of liquid from each waterer that exceed the daily minimum requirement. Replenish both liquids as necessary so that waterers do not become less than approximately one-third filled. Reverse positions of the waterers daily.

6.4 Provide each control group animal with two 100-ml graduated no-drip waterers filled only with tap water. Replenish as necessary so that waterers do not become less than approximately one-third filled.

6.5 Each day record the total quantity of each liquid consumed during the preceding 24 h for both the test and control groups.

6.6 Animals on test shall not be subjected to undue or unnecessary stress from noise or human activities (i.e., movement). Human activity within the animal test room shall be minimal.

7. Test Period

7.1 Maintain test period for two days.

7.2 Remove dead rats daily, or more frequently as observed.

7.3 Remove toxicant waterers at the end of the two-day test period, leaving tap-water waterers.

7.4 More than a 10% mortality in the control group negates the test, even if a 100% mortality had been achieved in the test group.

7.5 This test should be replicated at least once.

8. Test Period Follow-Up

8.1 Maintain observation on surviving test group and control group rats for a minimum of five days following the test period.

8.2 Continue feeding commercial rodent laboratory diet as in 6.2.

8.3 Describe unusual activities of test and control rats in report of test and posttest periods.

9. Calculation and Evaluation of Results

9.1 Record date, weight, and sex of each rat dying during the test and of survivors in both the test and control groups, and amount of toxic and nontoxic liquids consumed during the test and posttest periods. Retain original laboratory test records for future reference. Report all data collected including initial and final weights of test subjects. Include copies of all "raw" data sheets as well as typed numerical summaries of test results.

9.2 The product is considered satisfactory if a minimum mortality of 90% of test animals is obtained during test and posttest periods and if no more than 10% of control animals die during the study

9.3 The test report must include reports of chemical analyses of the test bait and the tap water for the active ingredient claimed to be in the test product. These tests must be conducted using methods that are acceptable to the U. S. Environmental Protection Agency.