

July 28, 1969

Henry Shaw Bussey, Entomologist
Pesticides Regulation Division
Agricultural Research Service
U. S. Department of Agriculture
Washington, D. C. 20250

Reg. No. 2727-AD, 2727-AD
Referral Date - 7/1/69

Dear Mr. Bussey:

The toxicological data on the 10% Sevin formulation dog and cat collars has been reviewed.

It is our considered opinion that no undue human health hazard will be created by the collars.

Sincerely,

Robert D. Coberly
Biologist
Division of Pesticide Registration
Office of Product Safety
Bureau of Entomology

EC:
OPS/MD-501
MED/MD-14
OPS/MD-530
OPS/MD-530/TB Harris
TBA P11a
OPS/TB Coberly/cm
7/28/69

COMMENTS

These data indicate that the possible toxic effects from the 10% animal collars should not create an undue human hazard.

CARBARYL

Dog Irritation Study (10% Collar)

The 10% collars were placed on the dogs for 3 weeks before the animals were examined. At this time it was found that the collars were too tight so they were re-adjusted and the experiment extended until at least 20 additional days. The exact number can not be arrived at from reading this report.

Results:

Fifteen of the dogs showed various degrees of inflammation due to the collars being too tight. When the collars were loosened the inflammation all but subsided.

Four animals died somewhere during the study. No mention is made of these animals and their disposition.

A summary paragraph in the report indicates that 8 deaths occurred among the dogs wearing the 10% carbaryl collars. It was determined by the attending veterinarian that 3 of the dogs died from distemper, 3 from pneumonia, 1 from trauma, and 1 from gastro-enteritis.

Comments

The results of this study are not well presented, the chart indicates 4 deaths while the toxicity summary indicates 8 deaths. According to the diagnosis of the veterinarian these dogs must have been in ill health

at the time the study was started. Or else the Carbaryl collars had a definite effect on the health of the animals in a very short period of time. No pathology was presented by the veterinarian to validate his findings.

Dog Cholinesterase Study (10% Collar)

Ten dogs were used in this study. These dogs had contact with the 10% collar for 90 days. Blood samples were taken by veni puncture and heparinized. The pH values were determined using whole blood.

Results:

No significant trends of cholinesterase inhibition was noted.

Rate of Release (10% Collar)

Initially 2 collars were placed on each of 11 dogs, 6 were short haired and 5 were long haired. At 2 week intervals for a period for 12 weeks both collars were removed from 2 animals, 1 long and 1 short haired.

Results:

At 12 weeks analysis of the collars showed that approximately 900 ml of carbaryl was released from the collars. This amount represents less than 2/3 the amount found in 1 ounce of 5% Carbaryl dust (1500 ml). 1 ounce of dust may be considered as the maximum amount applied to an average sized dog for flea and tick control, this amount may be used at weekly intervals if necessary.

Comments

The insecticide Carbaryl is a moderately toxic compound in single oral dose for rats and rabbits and somewhat more toxic for the guinea pig. The mean

LD₅₀ for several assays on rats is 540 mg/KG when fed as a 5% suspension in semi-solid agar. Rabbit and Guinea pig oral LD₅₀'s were 710 and 280 mg/KG when administered in semi-solid agar. Cats are slightly more susceptible than Guinea pigs, and dogs are probably as resistant as rats. Dogs tolerated a dose of 1.5 gm/KG in 3 doses 0.375, 0.375, and 0.795 gms separated by periods of 10 and 2 weeks. This demonstrates that massive doses can be tolerated.

A composite of symptoms following oral administration to rats include frothing at the mouth, bulging of the eyes, blood pigments visible in secretions from nose and mouth, and extreme sensitivity to any stimulus. Rabbits had an increase to the respiratory rate and were easily excited. The Guinea pigs exhibited tremors and extreme sensitiveness to stimuli within a half hour after treatment.

Potentiation Study in Rats (Sevin)

The test material was tested in combination with 5 organic phosphate insecticides and 14 unrelated pesticides. The LD₅₀ was established with each of these 19 compounds before combining them individually with Sevin for the potentiation studies. The other organic phosphates tested were Malathion, Methylparathion, Systox, Parathion, and EPN. The unrelated pesticides consisted of Chlordane, Crag Fly Repellent, Crag Fungicide Mylone, Crag Glyodin, Crag Herbicide, Crag Herbicide DCU, DDT, Dieldrin Fermate, Lethane 384, Lindane, Lime Sulfur, Thanite, and Toxaphene.

Results:

The resulting data indicated that additive effects were noticeable but no potentiation was in evidence.