DATE: IN____ OUT_____ IN_____ OUT_____ IN 3-31 OUT 4-30
FISH & WILDLIFE  ENVIRONMENTAL CHEMISTRY  EFFICACY

FILE OR REG. NO._________________________________________ 2596-AE

PETITION OR EXP. PERMIT NO.______________________________________________________

DATE DIV. RECEIVED_________________ 2-20-76

DATE OF SUBMISSION______________________________________________________________

DATE SUBMISSION ACCEPTED________________________________________________________

TYPE PRODUCT(S): (I) D, H, F, N, R, S ____________________________________________

PRODUCT MGR. NO._________________ 15

PRODUCT NAME(S)____________________ Hartz 2-in-1 Flea Collar for Dogs

COMPANY NAME_____________________ Hartz Mountain

SUBMISSION PURPOSE_________________ New

CHEMICAL & FORMULATION____________ Rabon 13.7%
Introduction
This is a review of a new 14% Rabon Cat Collar. The previously registered rabon collars were only 10% active ingredient.

Uses - See Label
Flea and Tick Claims are for 4 months efficacy. This is an extension of 1 month for the flea claims and 2 months for tick claims. The claims for activity after wetting are similar.

Data Summary
See the submission for 2596-RE.

A. FLEA DATA SUMMARY - DOGS

<table>
<thead>
<tr>
<th>STUDY</th>
<th>SITE</th>
<th>DOGS/REP</th>
<th>DAYS CONTROL</th>
<th>COMMENT</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gower</td>
<td>FL</td>
<td>12</td>
<td>??? 90 ???</td>
<td>Not averaged, Controls too erratic</td>
</tr>
<tr>
<td>Turlock</td>
<td>CA</td>
<td>6</td>
<td>155</td>
<td>Good population</td>
</tr>
<tr>
<td>Sharp</td>
<td>TX</td>
<td>12</td>
<td>105 − 133</td>
<td>Low control pop.</td>
</tr>
<tr>
<td>Mounce</td>
<td>PA</td>
<td>12</td>
<td>126</td>
<td>Controls break</td>
</tr>
<tr>
<td>Ecf</td>
<td>VA</td>
<td>10</td>
<td>85 − 92</td>
<td>Definite limit &amp; break</td>
</tr>
</tbody>
</table>

TOTAL ANIMALS: 52

B. BROWN DOG TICK DATA SUMMARY

<table>
<thead>
<tr>
<th>STUDY</th>
<th>SITE</th>
<th>DOGS/REP</th>
<th>DAYS CONTROL</th>
<th>COMMENT</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gower</td>
<td>FL</td>
<td>12</td>
<td>50</td>
<td>High pop. - Zodiac</td>
</tr>
<tr>
<td>Turlock</td>
<td>CA</td>
<td>6</td>
<td>155</td>
<td>Pop. Break - Zodiac</td>
</tr>
<tr>
<td>Sharp</td>
<td>TX</td>
<td>12</td>
<td>70 − 98</td>
<td></td>
</tr>
<tr>
<td>Mounce</td>
<td>PA</td>
<td>12</td>
<td>119</td>
<td></td>
</tr>
<tr>
<td>Ecf</td>
<td>VA</td>
<td>10</td>
<td>82 − 105</td>
<td></td>
</tr>
</tbody>
</table>

TOTAL ANIMALS: 52

* DAYS OF CONTROL: 107 − 119
C. Other Data

Additional data was submitted on wetness claims and on the Rocky Mountain Wood Tick, Dermacentor andersoni. The wetness data indicate that this kind (10%) of rabon collar blooms equally well during and after immersion in water.

Data was submitted on a cat study which indicated highly effective control of fleas for 4 months, with good infestation pressure and control group stability.

The data on D. andersoni are insufficient to indicate control for any period of time but are adequate to show biological activity for a genus other than Rhipicephalus. The problem with the test is a lack of attachment and engorgement on the control animals.

The submitted data are adequate to indicate no particular need for an anatomical restriction, although some increase is noted for the legs toward the end of 90 days, for ticks.

In almost every test, the product was equal or superior to the standard which is registered for 5 months against fleas and 4 months against ticks. This comparison can be made in tests with a total of 46 dogs, increasing the reliability of the data.

Wetness data are bridged between the 10 and 13.7% collars via the rationale of similarity of composition and method of release.

Conclusions

The data would be sufficient to support tick and flea claims for four months. These are the effective intervals supported by the data. In some cases, control populations begin to decline after this period of time. In other situations, control seems to become erratic and decline. The reviewer has graphic representations and a more thorough summary of the submitted data.
In almost all tests, efficacy appears to be delayed for several days after collar attachment. This is primarily evident in the tick data:

<table>
<thead>
<tr>
<th>Study</th>
<th>Delay in Efficacy</th>
</tr>
</thead>
<tbody>
<tr>
<td>ECI</td>
<td>8 days</td>
</tr>
<tr>
<td>Sharpe</td>
<td>2-3 days</td>
</tr>
<tr>
<td>Turlock</td>
<td>not reported</td>
</tr>
<tr>
<td>Gower</td>
<td>7-14 days</td>
</tr>
<tr>
<td>Mounce</td>
<td>2-4 days</td>
</tr>
</tbody>
</table>

**Average** 5-7 days

**202.2.3 Lesser Claims Supported**

A. The data will support tick and flea claims for 4 months.

B. The reviewer met with Dr. William Perlberg of Hartz Mountain and PM 15 Tim Gardner on Tuesday, May 20, 1976. Dr. Perlberg requested that the label declaration for a delay in activity be expressed as "a few days". This is consistent with the labelling on other marketed collars and would be acceptable for this product.

C. The correct name for D. andersoni is the Rocky Mountain Wood Tick.

Phil Hutton, Entomologist
Efficacy Section, EEEE
<table>
<thead>
<tr>
<th>Compsensation</th>
<th>Toxic signs</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acute Dermal (Rabbit)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Acute Inhalation (Rabbit) L50</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Comments:</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Acute oral (rat):**

- LD50:

**LD50:**

- Oral:
- Inhalation:
- Dermal:

**Lung:**

- Dose:
- Route:
- Toxicity:
- Exposure:
- Effects:

**Formulation:**

- Use:
- Acceptability:
- Dilution:

**Data classification:**

- Toxicity:
- Category:
- Hazard:
- Human:
- Animal:
- Avian:
- Aquatic:
- Plants:
- Soil:
- Aquatic:
- Human:
- Animal:
- Avian:
- Aquatic:
- Plants:
- Soil:
- Aquatic:

**Labeling:**

- Instructions:
- Precautions:
- Transportation:
- Disposal:
- Storage:
- First Aid:
- Warning:
- Hazards:
- Compatibility:
- Exposures:

**Recommendation:**

- Due to the potential for serious human and environmental hazards, this product is classified as a hazardous material under the provisions of the appropriate regulations. It should be stored in a secure area and handled in a manner that minimizes exposure to workers and the general public. Proper training and personal protective equipment should be used when handling this product.
2) Drug interaction study - cats exposed to 1570 stiriad collars for 60 days were slightly lethargic given either antihelminthic or a benzodiazepine tranquilizer. No evidence of drug interactions (as indicated by systemic toxicity) occurred. Unknown dosage - study is unacceptable.

3) Subacute eye and irritation studies on the actual use of the flea collar on cats were evaluated for 60 days (collar replaced at 30 days). No significant difference in irritation occurred between the use of the test and placebo collars. Results were not quantitated.

10% Stiriad

1) Eye and skin irritation studies in dogs - placebo, chain, and test collar were worn for 11-32 days. The study shows that no irritation was observed in the animals which could be attributed to the collar. The test was poorly designed so that the results are questionable.

2) Forced feeding study in dogs - 3 g collar was the dose used, 2 dogs used. Experimental methods were limited to observation and body weight determination. No effects were observed.

3) Effect of parasitic on skin irritation in dogs - no effect.

4) Long-term repeated exposure in dogs - duration 180 days, collars were replaced every 30 days. Biodread, benzodiazepine and irritant effects were assessed. No significant effects were observed.

5) Drug interaction study - common and veterinary drugs (corticosteroids, antibiotics, antihelminthic, intravenous, and oral) produced no deleterious effects when administered concurrently with the 10% stiriad collar.

6) Liver function test on animals in vivo (in vivo) - no effects observed.

7) Kidney function test on animals in vivo - no effect observed.

8) Effect of repeated exposure of cat to stiriad collar in cats - no skin irritation was observed (with the exception of 60 days).

9) Drug interaction study - all the drug acting helminths were administered concurrently with the collar. One animal died wearing the test collar recovered more slowly than did the animal wearing the placebo collar.

10) Replicating study in captive stiriad collars - no effect observed.