

US EPA ARCHIVE DOCUMENT



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

CASWELL FILE

MAY 4 1990

MEMORANDUM

SUBJECT: Nabam, Dermal Absorption Study in the Rat

TO: Lee/Cartwell PM-31
Registration Division (H7505C)

FROM: *[Signature]* 4/15/90
Robert E. Zendzian Ph.D.
Senior Pharmacologist
SACB, HED (H7509C)

THROUGH: Albin Kocialski Ph.D. *ABK 5/2/90*
Head
Registration Standards and Special Review Section

Reto Engler Ph.D. *[Signature]*
Chief
Science Analysis and Coordination Branch

Compound; Nabam

Tox Chem #585

Registration #31910

Registrant; Alco

MRID #403179-01

Tox Project #9-1827

Action Requested

Review the following study;

Dermal absorption of ^{14}C -Nabam in male rats after 10 hours exposure, L.W. LeVan, Hazleton Laboratories America, HLA 6185-102, Aug 10, 1987, MRID 403179-01

Conclusions

The study is acceptable.

At doses of 0.013, 0.13 & 1.3 mg/cm² for 10 hours absorption was 0.24, 0.05 and 0.08 % and skin residue after soap and water washing 15.68, 3.66 & 1.09 % respectively.

Attachment

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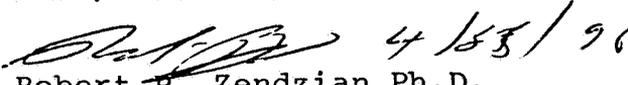
Backus

Data Evaluation Report

Compound Nabam

Citation

Dermal absorption of ¹⁴C-Nabam in male rats after 10 hours exposure, L.W. LeVan, Hazleton Laboratories America, HLA 6185-102, Aug 10, 1987, MRID 403179-01

Reviewed by  4/15/96
Robert P. Zendzian Ph.D.
Senior Pharmacologist

Core classification Acceptable

Conclusions

At doses of 0.013, 0.13 & 1.3 mg/cm² for 10 hours absorption was 0.24, 0.05 and 0.08 % and skin residue after soap and water washing 15.68, 3.66 & 1.09 % respectively.

Materials

¹⁴C-Nabam
lot no. 2201-063 (New England Nuclear)
specific activity, 5.0 mCi/mmol
radiopurity 97%

Nabam, ALCO-Vinings Lot no. 281770P

Albino male rats, Cr1:CD®(SD)BR 259 to 273 gms from Charles river

Experimental Design

Test animals were exposed dermally for ten hours as follows;

Group	<u>Dose/rat</u> (mg)	<u>(uCi)</u>	<u>Volume of</u> <u>Test Material/</u> <u>Animal (uL)</u>	<u>Number</u> <u>of Animals</u>
Control	0	0	0	2
1	0.1	1.5	50	4
2	1.0	1.5	50	4
3	10.0	1.5	50	4

Dose preparation

"The dosing solutions were prepared by mixing solutions of radiolabeled and nonlabeled Nabam in deionized water adjusted to pH 10 with sodium hydroxide. Three dosing solutions were prepared to deliver 0.1, 1.0 or 10 mg Nabam in a 50 uL volume. To verify the ¹⁴C content of each dosing solution, two pre and two post dose aliquots (50uL) were collected" and analyzed.

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Test material Administration

"Approximately 24 hours before dosing, the back and shoulders of each rat were shaved, and the shaved area washed with acetone. A rubber ring (1/4-in. rubber, 2.5 cm inner diameter) was glued on the middle of each animal's back with a cyanoacrylate-based glue (Pronto CA8®), Silicone medical adhesive Type A (Silastic®) was applied on the outside of each ring for sealing purposes. An Elizabethian collar was placed around each animal's neck."

"At 0 hour, the test material was applied within the rubber ring and spread evenly on the skin using a glass rod. The glass rod was then rinsed with water, and this rinse was saved for radioanalysis. After test material application, rubber cement was applied to the top portion of the ring. A filter paper disk approximately 4.25 cm in diameter was placed on the top of each ring."

The following samples were collected from each animal.

- Urine, total urine
- Feces, total feces
- Cage wash, at termination
- Blood, at termination by cardiac puncture
- Filter paper
- Skin, at termination the skin at the application site with the cover in place.
- Carcass, the remainder of the animal

The application site was washed immediately after sacrifice. "The rubber O-ring dam surrounding the application site was filled with a soap solution (1% Ivory® liquid soap in water), the application site was carefully washed with a cotton-tipped wooden applicator, and the soap wash in the O-ring was decanted. This procedure was repeated five times with water." The washes were collected for analysis with a rinse of the applicator tip.

Results

Results of the study are presented in Tables 1 and 2.

Table 1. Dose distribution following a single dermal dose of Nabam for a ten hour exposure period as percent of applied dose. Values are means of four animals. Data are from Tables 2 and 3 of the report.

Dose mg/rat (mg/cm ²)	<u>Urine</u>	<u>Feces</u>	<u>Cagewash</u>	<u>Carcass</u>	<u>Absorbed_a</u>	<u>Skin</u>	<u>Filter Paper</u>	<u>Skin Wash</u>	<u>Total</u>
0.1 (0.013)	0.24	ND	ND	ND	0.24	15.68	0.16	88.13	104.20
1.0 (0.13)	0.05	ND	ND	ND	0.05	3.66	0.05	96.92	100.68
10.0 (1.3)	0.08	ND	ND	ND	0.08	1.09	0.02	97.02	98.22

a. Total of urine, feces, cagewash and carcass.

Table 2. Dose distribution (in mg) following a single dermal dose of Nabam for a ten hour exposure period. Values are means of four animals.

Dose mg/rat (mg/cm ²)	<u>Urine</u>	<u>Feces</u>	<u>Cagewash</u>	<u>Carcass</u>	<u>Absorbed_a</u>	<u>Skin</u>	<u>Filter Paper</u>	<u>Skin Wash</u>
0.1 (0.013)	.00024	ND	ND	ND	.00024	0.016	0.0002	0.088
1.0 (0.13)	.0005	ND	ND	ND	.0005	0.037	0.0005	0.969
10.0 (1.3)	.008	ND	ND	ND	.008	0.109	0.002	9.702

a. Total of urine, feces, cagewash and carcass.

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