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PDBARON:mtw
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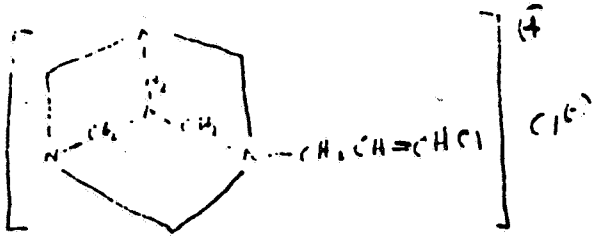
Trade Name: Dowicide Q

Chemical Formula: 

Chemical Name: 1-(3-chloroallyl)-3,5,7 triaza-1-azoniaadamantane chloride

Chemical Properties: Low solubility in organic solvents. Soluable in water alcohol, chemical action depends on release of formaldihyde in aqueous solutions.

Physical Properties: Little effect on surface tensions.

Odor not disagreeable or irritating

Solid form is a fine powder, white to light cream colored.

Use: Antibacterial treatment

Company: Dow Chemical Co.

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Acute Rabbit Oral	:	LD_{50} = 50 mg/kg
Acute Rat Oral	:	LD_{50} = 550 mg/kg (280-1060) LD_{50} = 940 mg/kg (670-1330)
Acute Cavy Oral	:	LD_{50} = 470 mg/kg (330-660)
Acute Dog Oral	:	LD_{50} = 500 mg/kg
Acute Rabbit Optic	:	Slight conjunctival redness persisting from 2-7 days in both unwashed and washed eyes.
Subacute Skin Irritation (Unbraded skin, 10 applications abraded skin, 3 applications) (Rabbits)	:	No irritation on unabraded skin Redness persisting for 4-7 days and subsiding, necrosis following 2-3 applications. Scar formation in three weeks.
Skin Intact Absorption (Rabbits)	:	No untoward effects in animals with intact skin. 1/3 animals in abraded group died.
Subacute Rabbit Dermal	:	1% and 5% solutions produced no systemic effects. Scar formation was noted under application sites.
Human Skin Irritation and Sensitization	:	0.5% solutions in oil and water produced no irritation, or sensitization.

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Acute Rabbit Oral

5 rabbits were intubated and dosed with a 3.16% aqueous solution of the test material at 15.8, 31.6, 63 and 126 mg/kg dosage levels.

Results

LD_{50} = 50 mg/kg

4/5 animals died on 2-4th day after treatment at 63 mg/kg dosage.

5/5 animals died on 2-4th day after treatment at 126 mg/kg dosage.

Acute Rat Oral

5 each male and female rats were intubated and dosed with a 20% aqueous solution of the test material at 252, 500, 1000, and 2000 mg/kg dosage levels.

Results

Male LD_{50} = 550 mg/kg (280-1060)

Female LD_{50} = 940 mg/kg (670-1300)

Animals displayed considerable irritation of the GO tract one day after feeding. Behavioral changes were noted. Diarrhea and diuresis were noted.

Acute Cavy Oral

5 male cavies were intubated and dosed with a 20% aqueous solution of test material at 126, 252, 500, and 1000 mg/kg.

Results

LD_{50} = 470 mg/kg (330-660)

All animals displayed diarrhea on the first night. Liver degeneration and necrosis were noted. Kidneys and lungs were congested.

Acute Chicken Oral

5 male chickens were dosed with capsules containing 1.0 g/kg and 2.0 g/kg of the undiluted test material.

Results

LD_{50} = 2000 mg/kg

No animals on lower dosages died. 2/5 animals on 2.0 g/kg dosage died. No symptomology was noted.

Acute Dog Oral

1 each male and female beagles were dosed with capsules containing 100, 500 and 1000 mg/kg of undiluted test material.

Results

Dogs regurgitated the 1,000 mg/kg dosage. Tolerated lower dosages well.

Acute Rabbit Optic

A small amount (precise amount not reported) of undiluted test material was dropped into the eyeballs of 3 test rabbits; the right eye was flushed with tepid water within 30 seconds, the left eye was unwashed.

Results

In the unwashed eyes there was slight conjunctival redness persisting for one hour in two rabbits, 48 hours in one. There was slight corneal injury in one animal, normal in 48 hours (as observed with fluorescien dye).

The washed eyes showed initially the same results except the conjunctival irritation was less pronounced.

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Subacute Dermal Irritation (2 and 10 Applications)

Both wet and dry undiluted material was applied to intact and abraded rabbit skins under a cloth bandage on a continuous contact basis (14 days to intact skin and 3 days to abraded skin).

Results

There was essentially no irritation to either the moist or dry material in the case of the intact skin. In the case of the abraded skins there was slight to moderate redness persisting for several days and then subsiding. There was necrosis following the second and third applications. A slight scar appeared in three weeks.

Skin Contact Absorption (Rabbits)

Three rabbits were exposed to a dosage of 2.0 gm/kg of test material on both intact and abraded skins for a period of 24 hours.

Results

Animals with intact skins had no deaths, those with abraded skins had 1/3 deaths. Moderate to severe hyperemia, redness, swelling and escar formation was noted in some rabbits under the patch.

Subacute Rabbit Dermal

For each male and female rabbits were divided into three groups--control 1 and 5%. Test material was applied as a aqueous solution. 15 ml of the solution was applied to each rabbit, seven hours per day, five days per week for three weeks. Animals were observed carefully for any departure from normal behavior, but skin reactions were recorded daily. At the termination of the experiment all animals were sacrificed and heart, liver and kidney tissues were taken for histopathological evaluation.

Results

Both the 1% and 5% solutions produced a small spot of eschar formation confined largely to the areas under the adhesive tape. All animals including control groups had normal behavior during and after the exposure. And had normal weight gain. There were histopathological changes noted in any of the animals which could be attributable to drug toxicity.

Skin Irritation and Skin Sensitization (Human)

37 male and 13 females, age ranges 18 to 57 were tested with a half percent aqueous solution of the test material and a half percent in cutting oil solution of the test material. For each of the two preparations a series of nine patches was placed on each of the 50 subjects/ Two weeks later an additional challenge patch was placed on each subject to detect skin sensitization. A series of nine patches was applied daily and the site grated for irritation.

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Results

Repeated insult and skin sensitization tests on human subjects at 0.5% concentrations in both water and a cutting oil suspension emulsion resulted in no primary skin irritation or skin sensitizing reaction.

Comments

Data on Dowicide Q has been reviewed. This product is shown to have little human toxicity when applied by the dermal route. Oral toxicities ranged between 500 and 1000 mg/kg in rats, cavies and dogs. However in rabbits the LD_{50} was approximately 50 mg/kg. Eye irritation is slight to moderate and persisting for two to seven days but regressing thereafter.

No acute inhalation studies have been submitted.