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Insect Repellents

A number of chemicals have been used to repel a variety of insects. Diethyltoluamide (DEET) (D. NX-diethyl-m-toluamide), however, is now recognized as the most effective repellent. It was synthesized by USDA chemists in the fifties and is now manufactured by four companies. The meta isomer of DEET has the best repellency.

First, how toxic is it? The acute oral LD50 for rats is 1950 mg/kg and the dermal toxicity of rabbits is about 10,000 mg/kg. Undiluted DEET in the eyes of rabbits caused moderate to severe irritation, so don't put it in your eyes. Human subjects, patchtested with 100% and 50% DEET solutions, showed no evidence of primary irritation or sensitization after 23 applications. Undiluted DEET applied to the injured skin of humans did not prolong healing. DEET has only one important disadvantage as it can be a solvent to some plastics, so this should be kept in mind during application.

Formulations of DEET are available at most stores: however, which one should you buy? As a general rule the one which provides you with the highest percentage of DEET for the least cost should be the best buy. One store in Anchorage was checked for repellents containing DEET and the following observations were made:

Name Brand	Type of Repellent	% Meta Isomer	% Other Isomers	Total DEET
Cutter's	Liquid	28.74	1.51	30.25
Cutter's	Aerosol	17.1	0.90	18.0
Cutter's	Stick	31.35	1.65	33.0
6-12	Aerosol	4.75	0.25	5.0
Deep Woods Off	Liquid	28.57	1.50	30.07
Deep Woods Off	Aerosol	19.9	1.0	20.9
Muskol	Liquid	95.0	5.0	100.0
Sportsmaster II	Liquid	42.0	2.25	44.25
Sportsmaster II	Aerosol	22.8	1.20	24.0

Aerosol containers are convenient, but costly in terms of the amount of active ingredient. Muskol is a new product; and if the label is accurate, it should be a very effective product. Clothes impregnated with DEET are used to protect the military in the Far East. Treated clothes provide a greater insect repellency because more area is treated than what you would place on the skin only, however, the clothes should be stored in a plastic bag to prevent evaporation.

Obviously, we cannot recommend or endorse any product, however, we do suggest that products containing a high percentage of DEET, especially the meta isomer, are more likely to provide the best protection.