WHAT IS AGENT ORANGE?

WHAT WERE VIETNAM VETERANS EXPOSED TO?

The term Agent Orange, 2,4,-D and 2,4,5-T a (50% 2,4,5-Trichlorophenoxy-Acetic Acid (2,4,5-T) and 50% 2,4-Dichlorophenoxy-Acetic Acid (2,4-D) an unavoidable contaminant of 2,4,5-T, is the dioxin 2,3,7,8-TCDD (Tetrachlorodibenzo-Para-Dioxin) said to be the most toxic synthetic substance known, was coined by the veterans of Vietnam, based on the color code stripes on the various chemical drums. i.e. (Agent Orange, White, Blue, Green, Pink or Purple)

AGENT WHITE (commercially known as TORDON. Chemically, it was 80% 2,4,-Dichlorophenoxy-Acetic Aciod and 20% Picloram). Formal chemical name: 4-Amino-3,5,6,-Trichloropicolinic Acid.

AGENT BLUE (commercially known as Phytar. Chemically known as Cacodylic Acid and Organic Arsenic or 100% sodium salt of Cacodylic Acid).

PICLORAM - Very few studies have been done with this combination of herbicides and none of these explain the joint problems reported by exposed people.

Mutagenicity of picloram has not been tested for in any mammalian cells. Oncogenicity of picloram has been clearly demonstrated in the liver of female rats, and a re-study of the tissue slides by a more experienced patholigist determined the chronic feeding of picloram caused tumors of endocrine organs and liver in rats and tumors of the spleen in mice. Toxic changes seen included atrophy of the testes in both rats and mice.

The tumors found in the livers of female rats have been reported as benign, and this has been interpreted by some persons to imply lack of oncogenic risk. However, the prevailing opinion of scientists is that such benign appearing chemically-induced tumors are actually pre-malignant lesions and the inducing chemical must be considered oncogneic.

Cacodylic Acide and sodium cacodylate, have been subjected to less-than-minimal testing for health effects, but since these compounds are inter-converted in the animal body and in the enbironment to other compounds which have a larger data base, such tests can be used to infer their effects. Cacodylic acid is rapidly absorbed through the lungs. It caused marked sterility in treated male fruit flies, was mutagenic in five different non-bacterial test systems. No testing for oncogenicity has been reported, but there is evidence for contamination and inter-conversion with trivalent inorganic arsenic which has been strongly correlated with human cancer. It is a suppressant of the immune system and causes crippling neuropathy. Cacodylic acid is converted in the environment to volatile and highly toxic arsine gases.

MALATHION and DIAZINONare organophosphate insecticides which primarily inhibit cholinesterase enzymes necessary for proper functioning of the nervous system. Subclinical enzyme inhibition is

common in exposed persons and may be associated with measureable neuropathy or neuropsycological dysfunction. Chronic exposure can lead to psychiatric illness of surprisingly long duration. Long lasting (73 years) sequelae of acute organophosphate poisoning include intolerance to very slight contact with these compounds or their solvents.

MALATHION causes allergic contact dermatitis and asthmatic bronchitis in humans, and inhibits both the primary and secondary immune responses in rabbits. It has been shown to break DNA or chromosomes in four tests, and to be carcinogenic in rats and mice.

DDT is toxic to the testes of rats but this may be caused by hormonal alteration rather than mutagenesis. DDT is oncogenic in the mouse liver. It has caused allergic contact dermatitis in humans and immunosuppression in rabbits.

LINDANE- is a neurotoxic insecticide. Persisting alterations in neurological and psychological function of exposed workers have been reported. Lindane is oncogenic in mice, and studies in other species have been deemed inadequate. A lindane metabolite, 2,4,6-trichlorophenol, is oncogenic in rats and mice. Lindane blocks proliferation of human lymphocytes in culture, suggesting that it may be immunotoxic.

CHLORDANE- damages DNA in human cells in culture. It is oncogenic in mice and probably in rats.

DIELDRIN - is a neurotoxic insecticide which causes changes in the electro-encephalogram tracings of exposed humans which may take up to a year to normalize. Dieldrin causes DNA damage in human cells in culture, and is oncogenic in mice, and rats, producing tumors in many organs.

MONURON and **BROMACI** have mutagenic activity in multiplenon-bacterail test systems. Monuron is oncogenic. Diuron has not been tested for oncogenicity or mutagenicity in any assay acceptible to EPA. EPA has ordered oncogenicity testing in two species and testing for mutagenicity of all three types. EPA considers diuron a suspect oncogen because of its structural similarity to linuron, a korwn inducer of liver and testicular tumors in rats. EPA's review of bromacil in 1982 identified data gaps for tests of chronic health effects, oncogenicity, and teratongenicity.

Solvents a major componenet of petroleum distillate, is n-hexane, which has been shown to induce peripheral neuropathy in humans and animals. This is synergized by tolulene exposure by increasing damage to major nerves and decreasing sensory effect.

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