Aminocyclopyrachlor Toxicity

Summary:

"Aminocyclopyrachlor poses very low risk to humans, including workers and the general population, due to its low toxicity and low volatility. Similarly, because of its low toxicity to terrestrial and aquatic non-target organisms **other than plants**, aminocyclopyrachlor poses low environmental risks."[1]

Toxicity to Humans

Human Toxicity	US EPA Determination[1,2]
Acute Toxicity	"...**low acute toxicity** by oral, dermal, or inhalation routes of exposure, and neither cause skin sensitization or irritation. However, both caused **mild eye irritation**."
Neurotoxicity	"**No evidence** of neurotoxicity..."
Developmental Toxicity	"**No evidence** of developmental toxicity..." "**No evidence** of prenatal toxicity..." "Therefore, the **young are not considered more susceptible than adults** to adverse effects from aminocyclopyrachlor or aminocyclopyrachlor-methyl."
Immunotoxicity	"There was **no evidence** of immunotoxicity."
Mutagenicity	"**No evidence** of genotoxic effects were observed in mutagenicity studies in vitro for aminocyclopyrachlor and aminocyclopyrachlor-methyl or in vivo for aminocyclopyrachlor."
Carcinogenicity	"Not likely to be Carcinogenic to Humans"

Ecotoxicity

Organism	US EPA Determination[1,2]
Plants	"As expected for herbicides, terrestrial and semi-aquatic plants are sensitive to aminocyclopyrachlor, where RQs exceeded the LOC. Non-target terrestrial and semi-aquatic plants may be exposed to aminocyclopyrachlor via runoff and spray drift, with dicots being more susceptible than monocots."
Mammals	"...**practically non-toxic** to mammals on an acute basis"
Fish	"Aminocyclopyrachlor is **practically non-toxic** to freshwater and estuarine/marine fish on an acute basis."

	"Aminocyclopyrachlor-methyl is **slightly toxic** to freshwater fish on an acute basis."
Aquatic Invertebrates (Acute)	"...**slightly toxic** to freshwater invertebrates on an acute basis." "...**practically non-toxic** to estuarine/marine invertebrates on an acute basis."
Aquatic Invertebrates (Chronic)	"Environmental concentrations of aminocyclopyrachlor in surface waters from applications at the maximum rates are expected to be in the parts per billion (ppb) range; whereas all aquatic toxicity studies were conducted at concentrations in the parts per million (ppm) range. Based on the results of chronic studies in freshwater fish, where the no observed adverse effect concentration (NOAEC) is 11 ppm, EPA also expects the freshwater invertebrate NOAEC to be in the ppm range, well above the expected environmental concentrations."
Birds	"...**practically non-toxic** to birds (also terrestrial-phase amphibians and reptiles) on an acute basis"
Honey Bees	"...**practically non-toxic** to terrestrial invertebrates, due to lack of mortality and sublethal effects in the honey bee study for aminocyclopyrachlor"
Earthworm	"An acute earthworm toxicity study for aminocyclopyrachlor-methyl also showed no mortalities or behavioral abnormalities..."

Resources

1. Registration of the New Active Ingredient Aminocyclopyrachlor for Use on Non-Crop Areas, Sod Farms, Turf, and Residential Lawns (EPA-HQ-OPP-2009-0789-0014) https://www.regulations.gov/document?D=EPA-HQ-OPP-2009-0789-0014

2. Aminocyclopyrachlor Human Health Risk Assessment for proposed Uses on Herbicides (EPA-HQ-OPP-2009-0789-0012) https://www.regulations.gov/document?D=EPA-HQ-OPP-2009-0789-0012