

toxic effects caused by glufosinate ammonium and its metabolites are discussed in Tables 1, 2 and 3 of this

unit as well as the no-observed-adverse-effect-level (NOAEL) and the lowest-

observed-adverse-effect-level (LOAEL) from the toxicity studies reviewed.

TABLE 1.—GLUFOSIANTE-AMMONIUM: ACUTE, SUBCHRONIC, CHRONIC, AND OTHER TOXICITY

Guideline No.	Study Type	Results
81-1	Acute oral	LD <sub>50</sub> = 4,010 mg/kg (milligram/kilogram) in males LD <sub>50</sub> = 3,030 mg/kg in females
870.3100	90-Day oral toxicity in rats (males only)	NOAEL = 6.2–8.8 mg/kg/day in males LOAEL = 64–90 mg/kg/day in males, based on glutamine synthetase inhibition in the brains
870.3100	<i>N</i> -acetyl-L-glufosinate disodium 90-Day oral toxicity in rats (males only)	NOAEL = 65–90 mg/kg/day in males LOAEL = 657–935 mg/kg/day in males, based on glutamine synthetase inhibition in the brains
870.3100	90-Day oral toxicity in mouse	NOAEL = 48 mg/kg/day in males, 192 mg/kg/day in females Highest Dose Tested (HDT) LOAEL = 192 mg/kg/day in males based on the changes in clinical biochemistry and liver weights in males
870.3200	21/28-Day dermal toxicity in rat	NOAEL = 100 mg/kg/day LOAEL = 300 mg/kg/day based on clinical observations (aggressive behavior, piloerection, and a high startle response)
870.3700	Prenatal developmental in rats (three studies combined)	Maternal: NOAEL = 10 mg/kg/day LOAEL = 50 mg/kg/day based on vaginal bleeding and hyperactivity Developmental: NOAEL = 50 mg/kg/day LOAEL = 250 mg/kg/day based on dilated renal pelvis
870.3700	Prenatal developmental in rabbit	Maternal: NOAEL = 6.3 mg/kg/day LOAEL = 20.0 mg/kg/day based on reduced food consumption, body weight and weight gains Developmental: NOAEL = 6.3 mg/kg/day LOAEL = 20.0 based on decreased body weights and fetal death
870.3800	Reproduction and fertility effects in rat	Parental/Systemic NOAEL = 18.0 mg/kg/day (HDT) LOAEL = not established Reproductive NOAEL = 6.0 mg/kg/day LOAEL = 18.0 mg/kg/day based on decreased number of viable pups Offspring NOAEL = 6.0 mg/kg/day LOAEL = 18.0 mg/kg/day based on decreased number of viable pups
870.4100	Chronic toxicity in dogs	NOAEL = 5.0 mg/kg/day LOAEL = 8.5 mg/kg/day based on mortality (week 2) and alterations in the electrocardiogram at 6 months
870.4200	Carcinogenicity in rats	NOAEL = 45.4 mg/kg/day in males, 57.1 mg/kg/day in females LOAEL = 228.9 mg/kg/day in males and 281.5 based on increased incidences of retinal atrophy. No evidence of carcinogenicity
870.4300	Chronic Feeding / Carcinogenicity in rats	NOAEL = 24.4 mg/kg/day in males, 8.2 mg/kg/day in females LOAEL = not achieved in males and 28.7 based on inhibition of brain glutamate synthetase in females at 130 weeks No evidence of carcinogenicity
870.4300	Carcinogenicity mice	NOAEL = 10.82 mg/kg/day in males, 16.19 mg/kg/day in females LOAEL = 22.60 mg/kg/day in males, 63.96 mg/kg/day in females based on increased mortality and glucose levels and consistent changes in glutathione levels in males, increased glucose levels and decreased albumin and total proteins No evidence of carcinogenicity
870.5265	Reverse Mutation Assay	Glufosinate ammonium failed to cause reverse mutations in bacteria with and without metabolic activation.
870.5300	Detection of gene mutations in somatic cells in culture	Glufosinate ammonium did not increase the mutation frequency at the thymidine kinase locus
870.5395	<i>In vivo</i> mammalian cytogenetic tests	The results indicated glufosinate ammonium had no effect on micronucleus formation