

Toxicological Properties

<u>Acute Oral Toxicity</u>	<u>LD₅₀ (mg/kg)</u>
diquat	230
paraquat	138

Paraquat is highly toxic to mammals and this accounts for its restricted use status. It is extremely

toxic to mammalian lungs, where it can cause sores and bleeding. Always wear approved safety equipment when handling these materials. Cows are particularly sensitive to diquat with an oral LD₅₀ of 30 mg/kg.

ALWAYS WEAR PROTECTIVE CLOTHING AND OBSERVE ALL PRECAUTIONS WHEN HANDLING DIQUAT OR PARAQUAT.

CARBAMATES

Important Members (Table 9)

Table 9. Important members of the carbamate family

Common Name	Trade Name(s)	Manufacturer	Water Solubility	Vapor Pressure (mm Hg @ 25-35° C)
Asulam	Asulox	Rhone-Poulenc	5,000	1 x 10 ⁻⁸

Uses

Asulam provides postemergence annual and perennial grass and broadleaf weed control in sugarcane, orchards, St. Augustinegrass and Tifway (419) bermudagrass turf.

Behavior in Plants

Absorption and Translocation

Asulam is readily adsorbed by shoots, with minor root adsorption. It is primarily translocated apoplastically but also has some symplastic movement. Translocation to underground structures makes asulam effective for controlling established perennial weeds.

Selectivity

Asulam is selective for a number of perennial grasses (i.e. johnsongrass), annual grasses (crabgrass) and perennial broadleaf weeds (*Rumex* sp.).

Mechanism of action

Asulam interferes with meristem growth by inhibiting cell division. It is considered a mitotic poison by arresting metaphase and altering cell expansion. Carbamates also may be involved in the inhibition of RNA and protein synthesis by inhibiting folic acid biosynthesis.

Degradation

Asulam rapidly degrades in tolerant plants and may also have less translocation of the compound when compared to susceptible plants.

Behavior in Soils

Adsorption and leaching

Asulam is readily leached because of its high water solubility and low level of adsorption.

Persistence

Asulam has a low order of persistence in soils with a longevity of 1 to 2 months, or a half-life of 6 to 14 days. Losses can be due to volatilization (especially from the surfaces of moist soils) and/or microbial degradation in other instances.

Distinguishing Characteristics

- Nonionic
- Some volatility can occur
- Highly water soluble and readily leached
- Absorption is increased with the addition of a wetting agent or adjuvant.